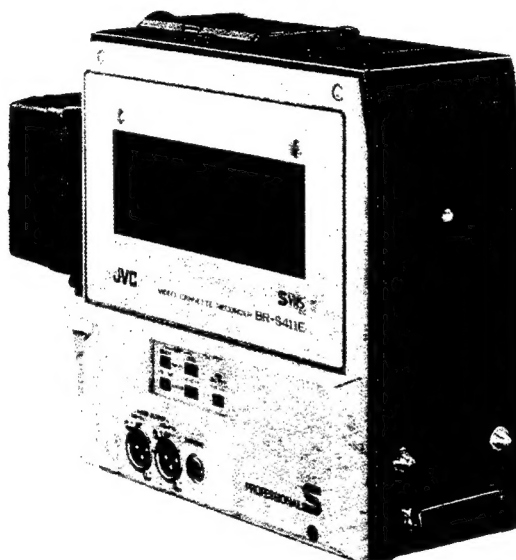


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

BR-S411E/SA-S41E



S VHS
625

VHS
PAL

Hi-Fi

HQ
High Quality

SPECIFICATIONS

GENERAL

Format	: VHS/S-VHS Europe standard
Video signal system	: PAL-type colour signal/ PAL-type Y/C signal
Tape speed	: 23.39 mm/sec
Recording time	: 180 min. with JVC SE-180 or E-180
Power requirement	: DC 12 V
Power consumption	: 16 watts
Dimensions	: 297(W) x 240(H) x 137(D) mm
Weight	: 4.0 kg (without accessories)
Operating temperature	: 0°C to 40°C, Non-water proof
Storage temperature	: -20°C to 50°C

VIDEO

Recording and Playback system	: Rotary two-head helical scanning system
Luminance	: FM recording
Colour	: Phase shift, converted sub-carrier direct recording
Video output	
Line	: 1.0 Vp-p, 75 ohms, unbalanced
Y/C	: Y: 1.0 Vp-p, 75 ohms, unbalanced C: 0.3 Vp-p (Burst), 75 ohms, unbalanced

Video S/N	: More than 45 dB
Resolution	
S-VHS mode	: 400 lines
VHS mode	: 250 lines

AUDIO

AUDIO INPUT	: -20/+4 dB, 10 k-ohms, balanced, XLR
(Microphone)	: -60 dB, 3 k-ohms, balanced, XLR
Line output	: -6/-20 dB, 600 ohms, balanced XLR
Earphone	: -25 to -45 dBs variable, 8 ohms load unbalanced
Frequency response	: 40 to 12,000 Hz (Normal) 20 to 20,000 Hz (Hi-Fi)
Audio S/N (at 3 % distortion)	: 46 dB (Normal/NR-ON)/ 42 dB (Normal/NR-OFF)
Audio dynamic range	: 80 dB (Hi-Fi)
Wow and flutter	: 0.007 % WRMS (Hi-Fi)
ACCESSORIES	: Battery pack (NB-G1U) x 1, Battery holder x 1

TABLE OF CONTENTS

Section	Title	Page	Section	Title	Page
Important Safety Precautions			4. DIAGRAMS AND CIRCUIT BOARDS		
INSTRUCTIONS			4.1	KEY TO ABBREVIATIONS	4-1
1. GENERAL DESCRIPTION			4.2	REPLACING SUBMINIATURE "CHIP" PARTS	4-2
1.1	COMPARISON TABLE OF DIFFERENT PARTS & FUNCTION BY MODEL	1-1	4.3	CIRCUIT BOARD LOCATIONS	4-3
1.2	REMOVING EXTERNAL COVERS	1-2	4.4	VIDEO SYSTEM BLOCK DIAGRAM	4-4
1.3	REMOVING MAIN BOARDS	1-4	4.5	VIDEO BLOCK DIAGRAM	4-5
2. MECHANISM ADJUSTMENTS			4.6	COLOR BLOCK DIAGRAM	4-6
2.1	MECHANISM ADJUSTMENTS	2-1	4.7	SERVO BLOCK DIAGRAM	4-7
2.2	TOOLS AND FIXTURES	2-1	4.8	AUDIO BLOCK DIAGRAM	4-8
2.3	MAIN PARTS LOCATIONS	2-2	4.9	SYSCON BLOCK DIAGRAM	4-9
2.4	MAIN PARTS REPLACEMENT TABLE	2-3	4.10	VIDEO SCHEMATIC DIAGRAM	4-10
2.5	MAIN PARTS REPLACEMENT	2-4	4.11	VIDEO CIRCUIT BOARD	4-12
2.5.1	Cassette housing removal	2-4	4.12	COLOR SCHEMATIC DIAGRAM	4-14
2.5.2	Upper drum replacement	2-4	4.13	COLOR CIRCUIT BOARD	4-15
2.5.3	Lower drum assembly replacement	2-5	4.14	PB COMB SCHEMATIC DIAGRAM	4-16
2.5.4	Upper drum eccentricity	2-5	4.15	PB COMB CIRCUIT BOARDS	4-17
2.5.5	Capstan assembly replacement	2-6	4.16	COLOUR SUB SCHEMATIC DIAGRAM	4-18
2.5.6	Mode control motor replacement	2-6	4.17	COLOUR SUB CIRCUIT BOARD	4-18
2.5.7	Full erase (FE) head replacement	2-7	4.18	VIDEO (2) SCHEMATIC DIAGRAM	4-19
2.5.8	Audio/Control (A/C) head assembly replacement	2-7	4.19	VIDEO (2) CIRCUIT BOARD	4-19
2.5.9	Pinch roller assembly replacement	2-7	4.20	ADVANCE REC SCHEMATIC DIAGRAM	4-20
2.5.10	Reel disk replacement	2-8	4.21	ADVANCE REC CIRCUIT BOARD	4-20
2.5.11	Clutch replacement	2-8	4.22	VITC JUNC SCHEMATIC DIAGRAM	4-21
2.5.12	Tension band replacement	2-9	4.23	VITC JUNC CIRCUIT BOARD	4-21
2.5.13	Brush and pick-up head replacement	2-9	4.24	VIDEO PREAMP SCHEMATIC DIAGRAM	4-22
2.6	CHECKS AND ADJUSTMENTS	2-9	4.25	VIDEO PREAMP CIRCUIT BOARD	4-22
2.6.1	Loading mechanism timing	2-9	4.26	FMA PREAMP SCHEMATIC DIAGRAM	4-23
2.6.2	Tension pole position (temporary)	2-9	4.27	FMA PREAMP CIRCUIT BOARD	4-23
2.6.3	Take-up torque	2-10	4.28	AUDIO/FM SUB SCHEMATIC DIAGRAM	4-24
2.6.4	Back tension	2-10	4.29	AUDIO/FM SUB CIRCUIT BOARD	4-26
2.6.5	Tape transport system checks and adjustments	2-10	4.30	XLR/AUDIO CONNECTOR/EARPHONE SCHEMATIC DIAGRAM	4-28
2.6.6	Interchangeability checks and adjustments	2-11	4.31	XLR/AUDIO CONNECTOR CIRCUIT BOARD	4-29
3. ELECTRICAL ADJUSTMENTS			4.32	SERVO SCHEMATIC DIAGRAM	4-30
3.1	PRELIMINARY CHECKS AND CAUTIONS	3-1	4.33	SERVO CIRCUIT BOARD	4-32
3.2	REQUIRED TEST INSTRUMENTS AND FIXTURES	3-1	4.34	MDA SCHEMATIC DIAGRAM	4-33
3.2.1	Alignment tape specifications	3-2	4.35	MDA CIRCUIT BOARD	4-33
3.2.2	Required video system test signals	3-3	4.36	REGULATOR SCHEMATIC DIAGRAM	4-34
3.3	DRUM AND CAPSTAN SERVO (SERVO CIRCUIT)	3-4	4.37	REGULATOR CIRCUIT BOARD	4-34
3.4	AUDIO CIRCUIT	3-9	4.38	ERASE SCHEMATIC DIAGRAM	4-34
3.5	VIDEO CIRCUIT	3-14	4.39	ERASE CIRCUIT BOARD	4-35
3.6	SYSCON CIRCUIT	3-29	4.40	SWITCH/OPERATION BUTTON SCHEMATIC DIAGRAM	4-35
3.7	LOCATION OF TEST POINTS AND ADJUSTMENT PARTS	3-29	4.41	SWITCH/OPERATION BUTTON CIRCUIT BOARD	4-35
3.7.1	ADVANCE REC BOARD/VIDEO PRE AMP BOARD	3-29	4.42	SYSCON SCHEMATIC DIAGRAM	4-36
3.7.2	VIDEO (2) BOARD/COLOR SUB BOARD	3-29	4.43	SYSCON CIRCUIT BOARD	4-37
3.7.3	VIDEO BOARD/COLOR BOARD	3-29	4.44	OVERALL WIRING DIAGRAM	4-38
3.7.4	SERVO BOARD	3-30	4.45	OTHER CIRCUIT BOARDS	4-40
3.7.5	AUDIO BOARD	3-30	4.46	IC BLOCK DIAGRAM	4-41
5. EXPLODED VIEWS AND PARTS LIST			5.1	STANDARD PART NUMBER CODING	5-2
			5.1.1	Screw coding	5-2
			5.1.2	Fuse coding	5-2

Section	Title	Page
5.2	EXPLODED VIEWS AND PARTS LIST	5-4
5.2.1	Packing assembly	5-4
5.2.2	Cabinet assembly	5-6
5.2.3	Frame assembly	5-8
5.2.4	Main-deck (1) assembly	5-10
5.2.5	Main-deck (2) assembly	5-12
5.2.6	Battery holder assembly	5-14

6. ELECTRICAL PARTS LIST

6.1	STANDARD PART NUMBER CODING	6-2
6.1.1	Fixed resistor coding	6-2
6.1.2	Fixed capacitor coding	6-3
6.1.3	Fuse coding	6-5
6.2	ELECTRICAL PARTS LIST BY ASSEMBLY	6-6
6.2.1	VIDEO BOARD ASSY	6-6
6.2.2	COLOR BOARD ASSY	6-12
6.2.3	SERVO BOARD ASSY	6-15
6.2.4	MDA BOARD ASSY	6-18
6.2.5	AUDIO BOARD ASSY	6-19
6.2.6	FM A PREAMP BOARD ASSY	6-25
6.2.7	REGULATOR BOARD ASSY	6-25
6.2.8	SYS CON BOARD ASSY	6-26
6.2.9	ERASE BOARD ASSY	6-28
6.2.10	FULL ERASE HEAD BOARD	6-28
6.2.11	XLR BOARD ASSY	6-28
6.2.12	AUDIO CONNECTOR BOARD ASSY	6-30
6.2.13	SWITCH BOARD ASSY	6-30
6.2.14	VIDEO PREAMP BOARD ASSY	6-30
6.2.15	START SENSOR BOARD ASSY	6-31
6.2.16	END SENSOR BOARD ASSY	6-31
6.2.17	DC IN BOARD ASSY	6-31
6.2.18	VIDEO OUTPUT BOARD ASSY	6-31
6.2.19	FUSE BOARD ASSY	6-31
6.2.20	MAIN SWITCH BOARD ASSY	6-31
6.2.21	OPERATION BUTTON BOARD ASSY	6-31
6.2.22	PB COMB BOARD ASSY	6-32
6.2.23	COLOR SUB BOARD ASSY	6-33
6.2.24	A/C HEAD BOARD	6-33
6.2.25	VITC JUNC BOARD ASSY	6-33
6.2.26	ADVANCE REC BOARD ASSY	6-34
6.2.27	VIDEO(2) BOARD ASSY	6-34
6.2.28	EARPHONE BOARD ASSY	6-35

Section	Title	Page
---------	-------	------

SA-S41E

INSTRUCTIONS

1. DISASSEMBLY

1.1	REMOVING CASE	1-1
1.2	REMOVING BOARDS	1-1

2. ELECTRICAL ADJUSTMENTS

2.1	PRELIMINARY CHECKS AND CAUTIONS	2-1
2.2	REQUIRED TEST INSTRUMENTS AND FIXTURES ...	2-1
2.3	ADAPTER CIRCUIT	2-2
2.3.1	Audio block	2-2
2.3.2	Video block	2-3

3. DIAGRAMS AND CIRCUIT BOARDS

3.1	ADAPTER BLOCK DIAGRAM	3-1
3.2	ADAPTER SCHEMATIC DIAGRAM	3-2
3.3	ADAPTER AND A/V OUT CIRCUIT BOARDS	3-4
3.4	IC BLOCK DIAGRAMS	3-5

4. EXPLODED VIEWS AND PARTS LIST

4.1	EXPLODED VIEWS AND PARTS LIST	4-1
4.1.1	Packing assembly	4-1
4.1.2	Adapter (1) assembly	4-2
4.1.3	Adapter (2) assembly	4-3

5. ELECTRICAL PARTS LIST

5.1.1	A/V OUT BOARD ASSY	5-1
5.1.2	ADAPTER BOARD ASSY	5-1

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (■) parts are critical for safety.

Replace only with specified part numbers.

Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.

Caution for continued protection against fire hazard.

Replace only with same type and rated fuse(s) as specified.

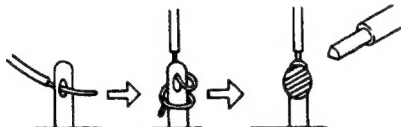
4. Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:

- | | | |
|--------------------|--------------------------------------|------------|
| 1) Insulation Tape | 3) Spacers | 5) Barrier |
| 2) PVC tubing | 4) Insulation sheets for transistors | |

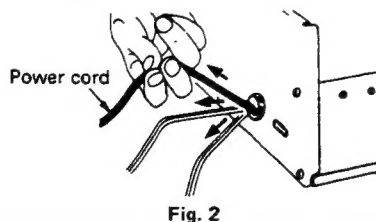
6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.



7. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.



10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)

In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector

In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1) **Connector part number :** E03830-001

2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.

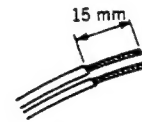
3) **Replacement procedure**

(1) Remove the old connector by cutting the wires at a point close to the connector.

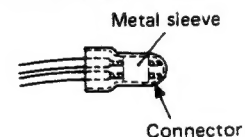
Important : Do not reuse a connector (discard it).



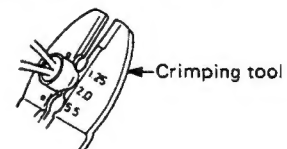
(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.



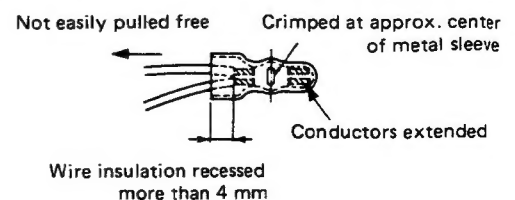
(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.



(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.



(5) Check the four points noted in Fig. 7.



● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

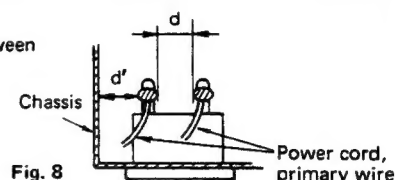
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

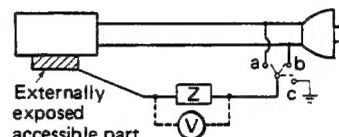


4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

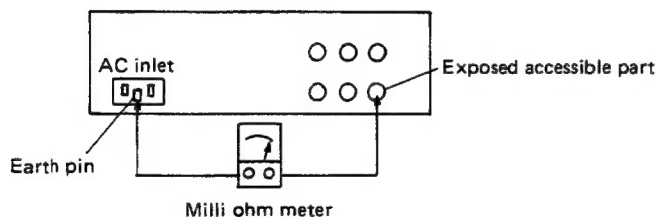


5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.



Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega / 500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega / 500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm}$ (Power cord) $d' \geq 6 \text{ mm}$ (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
220 to 240 V		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

JVC

BR-S411E

VIDEO CASSETTE RECORDER
MAGNETOSCOPE A CASSETTE
VIDEOCASSETTENRECORDER

SVHS
625

VHS
PAL

Hi-Fi

HQ
High Quality



WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

This unit should be used with 12 V DC only.

CAUTION:

To prevent electric shocks and fire hazards, do NOT use any other power source.

NOTE:

The rating plate (serial number plate) is on the rear of the unit.

CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

This equipment has been produced to comply with Directive number 82/499/EEC.

CONTENTS

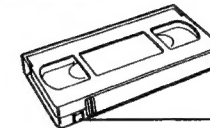
Precautions	2	Attaching a camera	11
Features	2	Recording	11
Controls, indicators and connectors	3	Audio dubbing	12
Comprehensive warning system	7	Playback	13
Power supply	7	Specifications	14
Loading and unloading a cassette	9		
Connections	10		

PRECAUTIONS**Handling and storage**

- Avoid using the recorder under the following conditions:
 - extremely hot, cold or humid places,
 - dusty places,
 - near appliances generating strong magnetic fields,
 - places subject to vibrations, and
 - poorly ventilated places.
- Be careful of moisture condensation. Avoid using the recorder immediately after moving it from a cold place to a warm place or soon after heating a room which was cold. The water vapor in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
 - Do not block the ventilation openings.
 - Do not place anything heavy on the recorder.
 - Do not place anything which might spill and cause trouble on the top cover of the recorder.

Video cassettes

- This recorder employs S-VHS and VHS cassettes only.
 - S-VHS: SE-180 for 180 minutes, SE-120 for 120 minutes, and SE-60 for 60 minutes of recording.
 - VHS: E-240 for 240 minutes, E-180 for 180 minutes, E-120 for 120 minutes, E-60 for 60 minutes, and E-30 for 30 minutes of recording.
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording can not be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.



Safety tab

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

FEATURES**More than 400 lines of horizontal resolution**

Conforming to the S-VHS format, the BR-S411E offers a picture with well over 400 lines of horizontal resolution which renders dramatic improvements in detail, clarity and presence, and fully justifies use in professional applications.

As a camcorder or a portable

The BR-S411E forms a compact camcorder in combination with a specific camera, or can be used as a separate portable recorder together with an existing camera using an optional VTR adapter.

Systems flexibility


Equipped with output connectors for both the composite and separated Y/C signals*, the BR-S411E flexibly interfaces with other video equipment. High-quality software programs can be produced using the BR-S411E as the master player and a current VHS or 3/4" U-VCR editing recorder (with or without Y/C 443 connectors), together with an optionally available editing controller. S-VHS editing recorders will further enhance and simplify editing.

Rotary Erase Head

A rotary erase head ensures distortion-free assembled edits by reducing chroma beats.

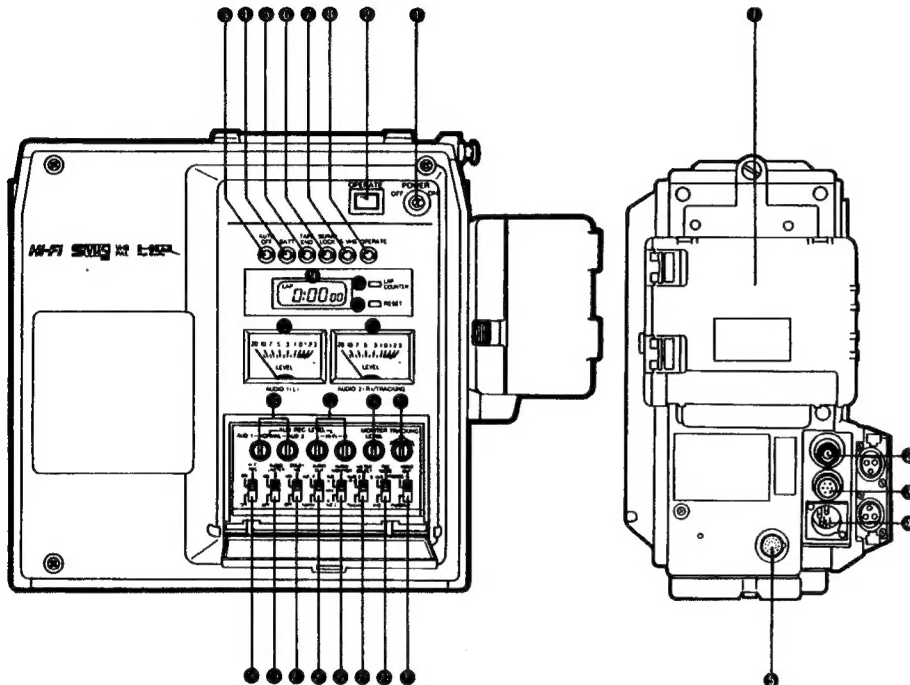
- VITC (vertical interval time code) recording capability with SA-R100E Time Code Generator (optional).
- HQ (High Quality) circuitry incorporated for operation in the VHS PAL mode.
- Rugged construction using aluminum diecast body.
- Shuttle search function.
- Audio level meters and LCD electronic counter.
- Independent inputs for Hi-Fi and normal audio.
- Hi-Fi audio recording can be defeated.
- Four audio recording level controls, allowing control of both Hi-Fi and normal audio for each channel.
- XLR input and output.
- Dolby** noise reduction system for normal audio.
- Switchable between VHS and S-VHS modes (SP mode only).
- Long pause/still mechanism.
- Comprehensive warning system.

* A Y/C filtering technique incorporated under license from Faroudja Laboratories Inc.

** Dolby noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. Dolby and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

CONTROLS, INDICATORS AND CONNECTORS

REAR PANEL/BATTERY SIDE



REAR PANEL

1 POWER switch

Set to ON to turn the power on; the tape counter will be illuminated in the Lap Time mode. When used in combination with a camera or a simple editing control unit, the power is also supplied to the camera or the control unit with this switch set to ON.

2 OPERATE switch

To make the recorder operative, press this OPERATE switch while the power is on. The OPERATE LED indicator will light. Press again to switch it off.

INDICATOR SECTION

3 AUTO OFF indicator

This indicator lights when the capstan, drum and reel motors cease to rotate; the recorder enters the Stop mode automatically. When moisture condenses inside the recorder, this LED blinks rapidly and the recorder enters the Stop mode automatically. Refer to the chart on page 7.

4 BATT indicator

This indicator blinks when the battery power drops to a level that needs recharging, and remains lit when the battery becomes completely depleted. Refer to the chart on page 7.

5 TAPE END indicator

Starts blinking shortly before the tape end, and remains lit when the tape comes to an end. This blinking time span differs slightly depending on the tape length of the cassette used. Refer to the chart on page 7.

6 SERVO LOCK indicator

Remains off while the drum and capstan servos are locked. When the servos are out of their lock ranges or when there is no input signal during recording, the indicator blinks at intervals of 1/4 second. During playback, it is always off. Refer to the chart on page 7.

7 S-VHS mode indicator

Lights during recording in the S-VHS MODE (selected with the REC MODE switch) and during playback in the S-VHS mode (selected through automatic detection).

8 OPERATE indicator

Lights when the OPERATE switch is pressed while the power is on.

9 Tape counter

Switchable between tape counter (from "0000" to "9999") and lap timer. In the Lap Timer mode, "LAP" appears at the left-hand corner of the display and a 5-digit display shows the amount of tape that has run, in hours, minutes and seconds.

10 LAP/COUNTER button

To switch the display between lap timer and tape counter.

11 RESET button

To reset the tape counter to "0000" or the lap timer to "0:00.00".

12 AUDIO-1(L) LEVEL meter

Shows the normal audio-1 or Hi-Fi left-channel level during recording and playback. Switching between normal and Hi-Fi audio is performed with the AUDIO OUT select switch.

13 AUDIO-2(R) LEVEL/TRACKING meter

Shows the normal audio-2 or Hi-Fi right-channel level during recording and playback. Switching between normal and Hi-Fi audio is performed with the AUDIO OUT select switch. When the METER SELECT switch is set to TRACKING, this shows the tracking during playback.

14 AUDIO LIMITER switch

Set to ON to activate the limiter circuit for the normal audio. The limiter circuit is switched on or off simultaneously for the audio-1 and audio-2 channels. Manual level control is possible even when the limiter circuit is switched on.

15 DOLBY NR switch

Set to ON to activate the noise reduction circuit for the normal audio track. To play back a tape which was recorded with the DOLBY NR switch set to ON, be sure to set the DOLBY NR switch to ON.

16 AUDIO OUT select switch

Selects the audio signal to be output from the AUDIO OUT connectors, earphone jack or checked on the audio level meters.

Hi-Fi: To check the Hi-Fi audio signals.

NORM: To check the normal audio signals.

17 AUDIO MONITOR switch

Selects the audio signal to be output via the earphone jack. AUD-1 (L): To monitor the audio signal on audio-1 or the left channel.

MIX: To monitor the mixed sound of audio-1 (L) and audio-2 (R).

AUD-2 (R): To monitor the audio signal on audio-2 or the right channel.

18 METER SELECT switch

Selects the function of the AUDIO-2 (R)/TRACKING meter.

AUDIO-2 (R): To show the audio level of normal audio-2 or Hi-Fi audio right channel.

TRACKING: To show the playback FM signal level.

19 REC MODE switch

Selects the recording mode of the video signal.

S-VHS: To record in the S-VHS mode using S-VHS tape.

VHS: To record in the VHS mode.

20 VIDEO OUT select switch

PROCESS-1: Normally set to this position.

PROCESS-2: In this position, the playback pictures are slightly affected by noise, but the recorded pictures have better detail. Use this position when using the BR-S411E as a feeder in editing.

SUB CONTROLS

21 AUD REC LEVEL NORMAL AUD-1/AUD-2 controls

To adjust the normal audio recording level for audio-1 and audio-2 manually, referring to the audio level meters.

22 AUD REC LEVEL Hi-Fi L/R controls

To adjust the Hi-Fi audio recording level for left channel and right channel manually.

23 MONITOR LEVEL control

Turn to adjust the earphone output level.

24 TRACKING control

Noise bars may be seen or breaks in the Hi-Fi sound may be heard, when playing back a tape that was recorded with a different recorder. To correct this, turn the TRACKING control so that the needle of the TRACKING meter makes its maximum deflection.

25 Hi-Fi REC switch

ON: To record sound on the Hi-Fi audio track.

OFF: To defeat the recording of sound on the Hi-Fi audio track.

BATTERY SIDE

26 Battery holder

Insert an exclusive battery pack (NB-G1U) into this holder.

27 VIDEO OUT connector (BNC)

Line output connector for composite video signal.

28 Y/C 443 output connector (7-pin)

To deliver Y/C 443 video signals (separated luminance and chroma signals).

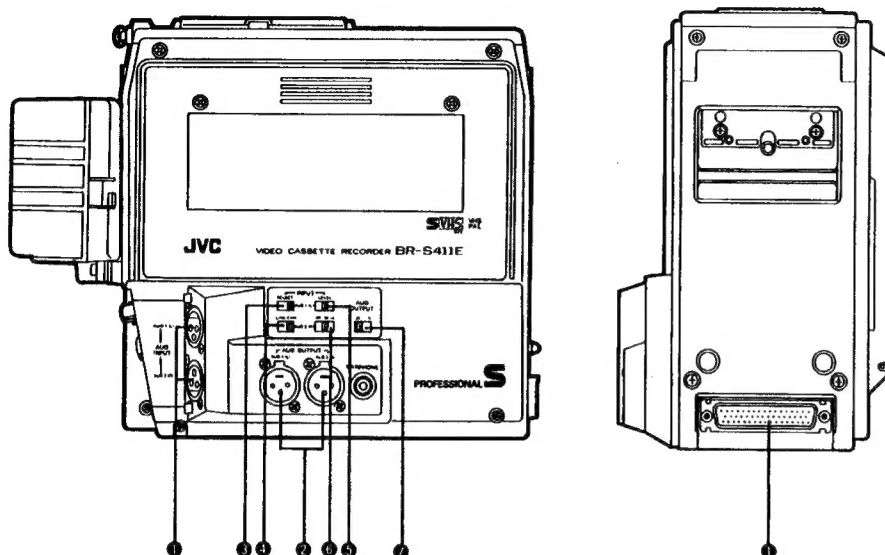
29 DC IN 12 V connector

Connect the AA-G10E battery charger/power adapter (optional) for AC operation.

30 TIME CODE connector (10-pin)

Connect the SA-R100E Time Code Generator (optionally available) when you wish to record the VITC (vertical interval time code).

FRONT PANEL/CAMERA CONNECTOR SIDE



FRONT PANEL

- 1 **AUDIO INPUT connectors (AUD-1/L, AUD-2/R)**
Audio Input connectors for Normal and Hi-Fi audio when the AUDIO INPUT SELECT switch 6 or 7 is set to LINE for each channel.
- 2 **AUDIO OUTPUT connectors (AUD-1/L, AUD-2/R)**
The audio signal (Hi-Fi or Normal) selected with the AUDIO OUT select switch 3 on the rear panel is output via these connectors.
- 3 **AUD-1 (L) INPUT select switch**
Selects the input signal (camera or Line AUD-1/L of AUDIO IN connector 1) to be recorded.
- 4 **AUD-2 (R) INPUT select switch**
Selects the input signal (camera or Line AUD-2/R of AUDIO IN connector 1) to be recorded.
- 5 **AUD-1 (L) INPUT level select switch**
Select -60 dB, -20 dB or +4 dB according to the level of the AUD-1/L input signal.
- 6 **AUD-2 (R) INPUT level select switch**
Select -60 dB, -20 dB or +4 dB according to the level of the AUD-2/R input signal.
Note: -60 dB: Audio recording from microphone.
-20/+4 dB: Audio recording from VTR or other audio equipment.

2 AUDIO OUTPUT level select switch

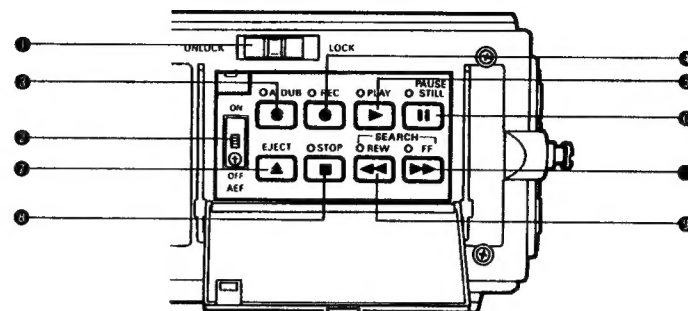
Select -20 dB or -6 dB according to the level of the audio output signal. The level is switched for both Left/Right audio channels simultaneously.

CAMERA CONNECTOR SIDE

1 Camera connector (50-pin)

Connect a video camera equipped with a 50-pin VTR docking connector.

TOP PANEL



1 UNLOCK/LOCK slide knob

Slide to UNLOCK to open the control panel cover. Leave it in the LOCK position in normal shooting operation.

2 AEF ON/OFF switch

Normally set this switch to ON. To re-set to OFF, loosen the screw and remove the stopper plate. In the OFF position, the preroll function is switched off for prompt response in recording, though the picture at the switching point between pause and restart is distorted.

3 A DUB button

To start audio dubbing, press the PLAY button while holding the A DUB button depressed. The A DUB and PLAY LED indicators will light and the sound on the normal audio-2 track will be replaced by new material.

4 REC button

To start recording (video and audio), press this button together with the PLAY button. To stop recording, press the STOP button. When the REC button is pressed together with PAUSE/STILL button, the tape is rewound for 1-3 seconds and stops in the Record-Pause mode (Recording Standby mode). Recording starts by pressing the camera's trigger.

5 PLAY button

Press to start playback. Press together with the REC button for recording, and with the A DUB button for audio dubbing.

6 PAUSE/STILL button

Press to stop the tape temporarily during recording or playback. The PAUSE/STILL LED indicator will light. When this button is pressed during recording, the tape is rewound for 1.3 seconds and stops in the Record-Pause

mode (when AEF mode is on). When the PLAY button is pressed, or triggered by the camera's start/stop button, the tape starts running and recording starts at the position where the previous recording stopped. When this button is pressed during playback, a still picture is obtained. For frame advance, press it repeatedly. To resume normal playback, press the PLAY button.

7 EJECT button

Press to lift the cassette housing. Functions only in the Stop mode. To eject the cassette in any other mode, first press the STOP button, then the EJECT button.

8 STOP button

Press to stop the tape. When this button is pressed while the tape is running, the LED indicator lights and the tape is completely withdrawn into the cassette. This state is referred to as the Stop mode.

9 REW button

When the button is pressed in the Stop mode, the REW LED indicator will light.

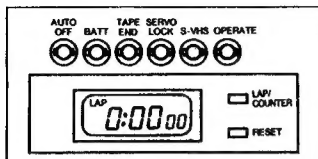
Pressing this button in the Play on Still mode enables high-speed playback at about 9 times normal in the reverse direction. During search the REW indicator will remain lit.

10 FF button

When the button is pressed in the Stop mode, the FF LED indicator will light.

Pressing this button in the Play on Still mode enables high-speed playback at about 9 times normal in the forward direction. During search the FF indicator will remain lit.

COMPREHENSIVE WARNING SYSTEM



To ensure trouble-free operation and quality recordings, the BR-S411E has a comprehensive array of warning indicators. When any of the warning indicators lights or flashes, beeps can be heard in the output sound from the EARPHONE jack. With some cameras, their tally lamps are controlled by the same warning signal and present identical indications. The following chart summarizes the facts relating to the warning system.

Indication symbols:

- : The LED remains lit.
- ◐ : The LED flashes at intervals of 1 second.
- ◑ : The LED flashes at intervals of 1/4 second.
- ~~~~~ : Continuous warning tone is heard.
- ~~~~~ : Intermittent beep, 1-second intervals.
- ~ ~ ~ : Intermittent beep, 1/4-second intervals.

LED indicator	Indication Mode		Alarm sound ¹⁾ in the earphone	VCR operation Mode		Tally indication on camera		Remarks
	REC	PLAY		REC	PLAY	BATTERY	REC	
SERVO LOCK	●	—	~~~~~	Continues	—	—	●	Out of lock.
TAPE END	●	—	~~~~~	Continues	—	—	●	About 2 minutes before the end of the tape.
	○	○	~~~~~	Stops	Stops	—	—	Tape end.
AUTO OFF	●	●	~~~~~	Operate OFF	Operate OFF	—	—	Capstan, drum or reel motors stop.
	○	○	~~~~~	Stops	Stops	—	—	Condensation. ²⁾
BATT	●	●	~~~~~	Continues	Continues	●	●	Slightly before the battery is depleted.
	○	○	~~~~~	REC LOCK	Operate OFF	○	—	Battery depleted.

1) The alarm sound is superimposed on the audio output from the EARPHONE jack.
Priority of earphone output: ~~~~~ > ~ ~ ~ > ~ ~ ~

2) If the AUTO OFF state due to condensation occurs, dry inside the recorder.

POWER SUPPLY

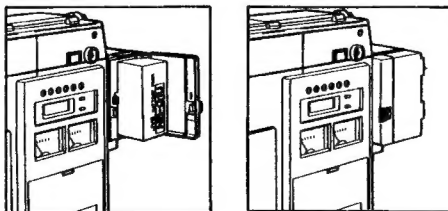
Power can be supplied in two ways as required.

1. Using the NB-G1U battery pack (provided).
2. Using the AA-G10E AC power adapter/battery charger (optional)

- To remove the battery pack, open the battery compartment door and press the battery release button. The battery pack will be released. Withdraw the battery pack.
- Read the instructions on the battery pack carefully.

USING THE NB-G1U BATTERY PACK

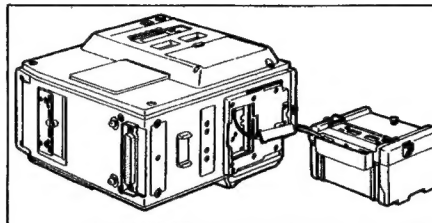
1. Make sure that the POWER switch of the BR-S411E is OFF.
2. Slide the battery compartment door latch of the battery holder to the right and open the door.
3. Insert the NB-G1U battery pack into the battery holder with its printed label to the left.
4. Close the door of the battery holder.



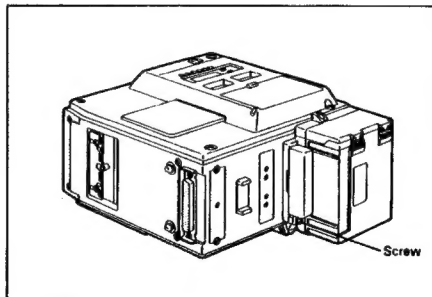
USING TWO NB-G1U BATTERY PACKS WITH AN OPTIONAL BATTERY HOLDER

When the BR-S411E is used in a camcorder configuration, one battery pack can be installed inside the provided battery holder and the other can be attached externally using an optional battery holder. Both battery packs operate in parallel to prolong the recording time.

1. Open the cover of the DC connector pocket and pull out the DC connector. Combine this connector with the DC connector of the battery holder. Then store these connectors into the pocket.

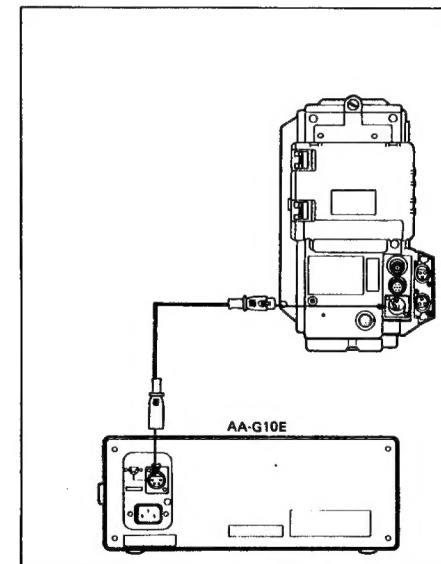


2. Mount the battery holder onto the BR-S411E and secure with the screws. Insert a battery pack into the battery holder.



USING THE AA-G10E BATTERY CHARGER/ AC POWER ADAPTER

1. Connect the DC OUT connector of the AA-G10E to the DC IN connector of the BR-S411E using the DC cord provided with the AA-G10E.
 2. Connect the power cord to the AA-G10E and plug it into an AC outlet.
 3. Press the VCR button on the front panel of the AA-G10E.
 4. Press the POWER button of the AA-G10E to ON.
-
- If the battery pack remains inside the battery holder, its power is consumed even when the AA-G10E powers the recorder. Be sure to remove the battery pack during AC operation.
 - For more details refer to the instruction manual of the AA-G10E.



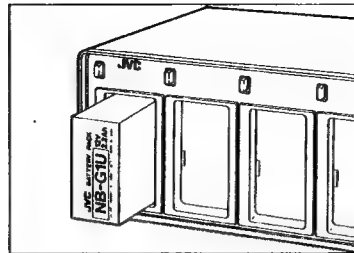
CONNECTIONS

RECHARGING THE NB-G1U BATTERY PACK

To charge the battery pack, use the exclusive AA-G10E adapter/battery charger (AC power). No other charger, including JVC's other models, can be used to charge the NB-G1U battery pack.

The AA-G10E can charge 4 battery packs at a time. Two different charging modes are available; normal charging and quick charging. In normal charging, 4 battery packs are charged in parallel and charging is completed in about 10 hours. In quick charging, charging is performed one battery at a time, taking about 90 minutes per battery pack. After the 4 battery packs have been charged in sequence, they are charged together in the normal charging mode for one hour.

1. Insert a battery pack into each compartment of the AA-G10E, contacts first and with the printed side to the left, until it locks into place.
2. Press the POWER button of the AA-G10E to ON.
3. Press either the QUICK CHARGE or NORMAL CHARGE button depending on the charging mode you select.

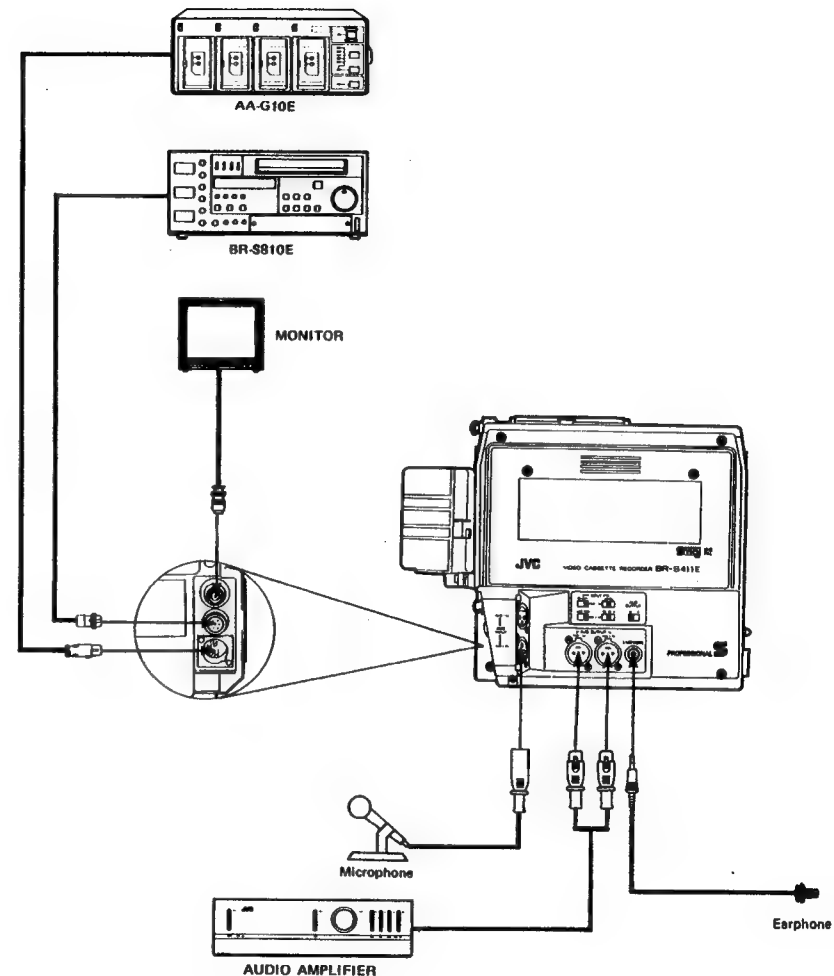
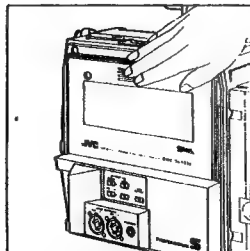
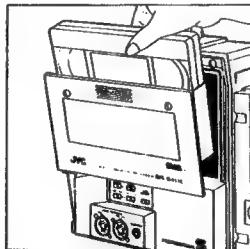


- If the BR-S411E is connected to the AA-G10E, make sure that its POWER button is OFF.
- For more details about charging, refer to the instruction manual for the AA-G10E.

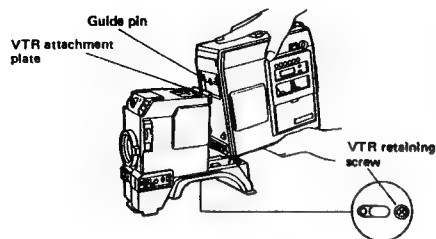
LOADING AND UNLOADING A CASSETTE

- Set the POWER button to ON and press the OPERATE button before inserting a cassette. If the AUTO OFF indicator should flash, do not insert a cassette, but put the machine in a dry place and wait until the indicator goes off.
- Before inserting a cassette, check to see if there is any tape slack.
- To remove the cassette, the power should be on, otherwise the tape is not unloaded.
- If a cassette is loaded near the end of the tape, tape loading may not be performed and the TAPE END indicator will remain lighted. If you wish to record onto the last few minutes of tape, remove the cassette and rewind the tape slightly by hand or with a tape winder.
- If the EJECT button does not function when the power is off, first switch on the power, then press the EJECT button.

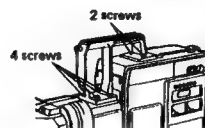
1. Press the EJECT button, and the cassette housing will open gently. Insert a cassette correctly so that the groove of the cassette is in line with the cassette guide of the cassette housing.
2. Press the housing cover down by hand at the top edge. The STOP LED will light.



ATTACHING A CAMERA



1. Remove the red cap from the camera connector.
2. Attach the camera to the BR-S411E by aligning the portions which engage.
3. Attach the camcorder carrying handle.



RECORDING

RECORDING PROCEDURE

1. Set the POWER switch to ON.
2. Press the OPERATE button.
 - In the camcorder configuration, use the OPERATE switch on the camera (set it to ON). Power will be supplied to both the BR-S411E and the camera.
3. Slide the UNLOCK/LOCK knob to UNLOCK and open the control panel cover.
4. Press the EJECT button to open the cassette housing, and insert a cassette.
5. Press the REC and PLAY buttons to start recording.
 - When using a camera, this engages the Record-Pause mode and actual recording will be started by the camera's trigger.
6. To stop recording temporarily, press the PAUSE/STILL button. To re-start recording, press the PLAY button.
 - When using a camera, tape start/stop will be controlled by the camera's trigger. When the camera's power is

turned off, the recorder enters the Record-Lock mode so that it can enter the Record-Pause mode when the power is reapplied to the camera.

- Do not stop recording with the STOP button, otherwise the AEF mechanism will not function. (For the AEF mechanism, refer to page 12.)

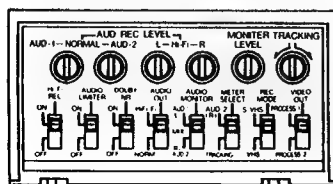
Notes:

- Even if the recording mode is switched from VHS to S-VHS during recording in the VHS mode with a VHS cassette loaded, the mode will not change, but VHS recording will continue with the S-VHS mode indicator blinking.
- When using a camera, if recording is started immediately after the camera is switched from the power save mode to the standby mode, the picture will be distorted until the servo system locks. Before starting, allow for longer than 6 seconds after the camera is engaged in the standby mode.

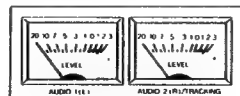
AUDIO LEVEL ADJUSTMENT

The audio recording level can be adjusted independently for Hi-Fi L, Hi-Fi R, normal audio-1 and audio-2 channels.

1. Hi-Fi audio recording level adjustment
Set the Hi-Fi REC select switch to ON and set the AUDIO OUT switch to Hi-Fi to switch the audio level meters to the Hi-Fi level mode. Turn the AUD REC LEVEL Hi-Fi L or R control until the corresponding audio meter deflects to "0" with the highest level input signal.



2. Normal audio recording level adjustment
Set the AUDIO OUT switch to NORM to switch the audio level meters to the normal audio level mode. Turn the AUD REC LEVEL NORMAL AUD-1 or AUD-2 control until the corresponding audio meter deflects to "0" with the highest level input signal.

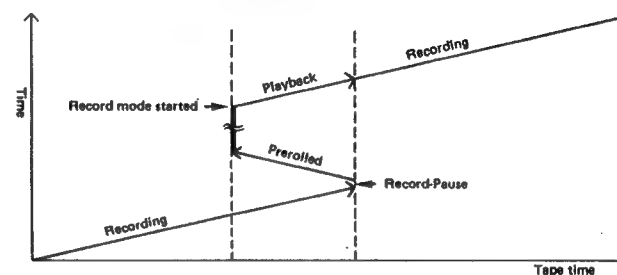


Notes:

- When monitoring the sound with an earphone, the earphone output can be switched among audio-1(L), audio-2(R) and a mixture of the two with the AUDIO MONITOR select switch.
- It is recommended, especially in live recording, that the AUDIO LIMITER switch be set to ON to avoid overlevel recording.
- Set the DOLBY NR switch as required.

AUTOMATIC EDITING FUNCTION

The AEF mechanism helps prevent picture distortion at edit points in assemble recording. When the PAUSE/STILL button is pressed during recording, the tape is rewound by about 1.3 seconds of program time and stops in the Record-Pause mode. When recording is re-started by pressing the PLAY button, recording does not take place for the first 1.3-second period, during which tape running is stabilized for smooth transition to the next edit.

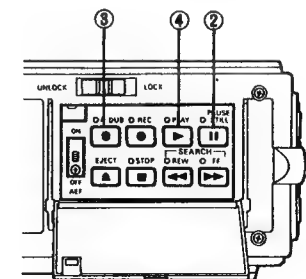
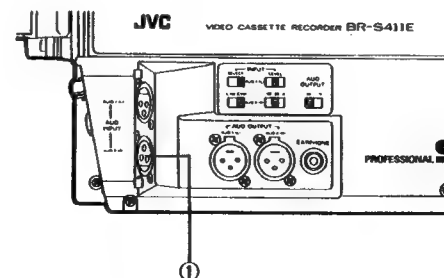


Notes:

- If recording is re-started from the Stop mode, rainbow noise will be introduced at the transition between the previous and new recordings because of overlapped recording.
- Do not move the unit violently in the Record-Pause mode, otherwise frames may be missed.

AUDIO DUBBING

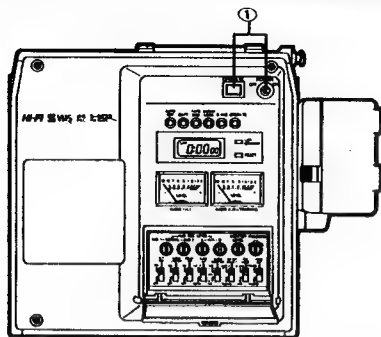
The BR-S411E has an audio dubbing function which enables the normal audio-2 soundtrack to be replaced with new material.



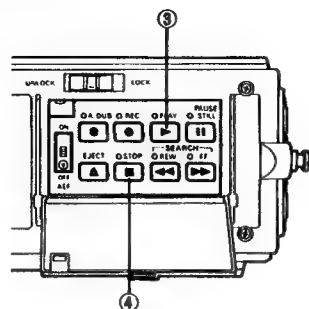
- ① Connect a sound source to the MIC AUD-2(R) jack or the AUDIO IN AUD-2(R) connector. Adjust the recording level.
- ② Play back the tape and press the PAUSE/STILL button at the position from which you want to start audio dubbing.
- ③ Press the PAUSE/STILL button while holding the A DUB button depressed.
- ④ Press the PLAY button to start audio dubbing. Press the PAUSE/STILL button to stop audio dubbing temporarily. To end audio dubbing, press the STOP button.

PLAYBACK

PLAYBACK PROCEDURE



- ① Set the POWER switch to ON and press the OPERATE button.
- ② Insert a recorded cassette correctly.
- ③ Press the PLAY button to start playback.
- ④ Press the STOP button to stop playback.

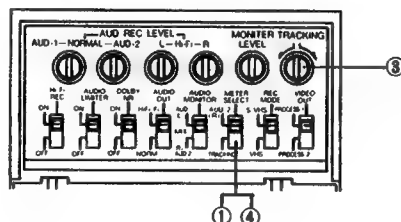


Note:

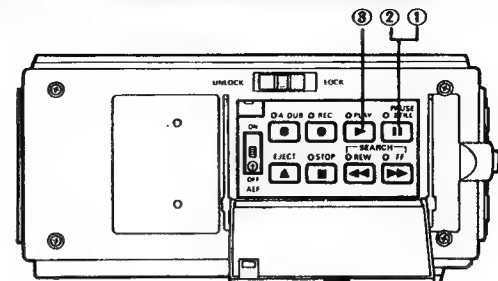
- If excessive noise bars appear or the pictures look grainy, adjust the TRACKING control.

TRACKING ADJUSTMENT

- ① Set the METER SELECT switch to TRACKING.
- ② Play back the tape.
- ③ While referring to the AUDIO-2(R)/TRACKING meter, turn the TRACKING control slowly so that the meter makes the maximum deflection to the right.
 - Normally set the TRACKING control to its center position.
- ④ After completion of tracking adjustment, re-set the METER SELECT switch to AUD-2(R) so that the meter will function as an audio level meter.



STILL AND FRAME ADVANCE



- ① Press the PAUSE/STILL button during playback to view a still picture.
- ② To advance the still picture, press the button again.
 - Holding the PAUSE/STILL button depressed will continuously advance the still picture one frame at a time to give a slow-motion effect.
 - This function is not available with the remote control unit's (optional) PAUSE button.
- ③ To resume normal playback, press the PLAY button.

Notes:

- To protect the tape and video heads, the tape is automatically fed for several frames if the Still mode continues for about 3 minutes and then again after another 3 minutes. If the Still mode continues for about 9 minutes, the Stop mode will be engaged automatically.
- Still pictures may contain some noise or vibrate vertically. This is not due to any defect of the unit.
- The FRAME ADVANCE mode cannot be engaged by the remote control unit (optional).

SHUTTLE SEARCH & REW/FF

When the REW or FF button is pressed in the stop mode, normal rewind or fast forward takes place. When these buttons are pressed in the Play or Still mode, the tape runs at about

9 times normal speed in the corresponding direction. The buttons can be locked and the indicator lights. You can follow the speed-up picture on the monitor screen.

SPECIFICATIONS

GENERAL

Format	: VHS/S-VHS Europe standard
Video signal system	: PAL-type colour signal/ PAL-type Y/C signal
Tape speed	: 23.39 mm/sec
Recording time	: 180 min. with JVC SE-180 or E-180
Power requirement	: DC 12 V
Power consumption	: 16 watts
Dimensions	: 297(W) x 240(H) x 137(D) mm
Weight	: 4.0 kg (without accessories)
Operating temperature	: 0°C to 40°C, Non-water proof
Storage temperature	: -20°C to 50°C

VIDEO

Recording and Playback system

- Rotary two-head helical scanning system
- FM recording
- Phase shift, converted sub-carrier direct recording

Video output

Line	: 1.0 Vp-p, 75 ohms, unbalanced
Y/C	: Y: 1.0 Vp-p, 75 ohms, unbalanced C: 0.3 Vp-p (Burst), 75 ohms, unbalanced

Video S/N

Resolution	: More than 45 dB
S-VHS mode	: 400 lines
VHS mode	: 250 lines

AUDIO

AUDIO INPUT

(Microphone)	: -20/+4 dB, 10 k-ohms, balanced, XLR
Line output	: -6/-20 dB, 600 ohms, balanced XLR

Earphone

: -25 to -45 dBs variable, 8 ohms load unbalanced

Frequency response

	: 40 to 12,000 Hz (Normal)
	: 20 to 20,000 Hz (Hi-Fi)

Audio S/N

(at 3 % distortion)	: 46 dB (Normal/NR-ON)/ 42 dB (Normal/NR-OFF)
---------------------	--

Wow and flutter

	: 0.007 % WRMS (Hi-Fi)
--	------------------------

ACCESSORIES

	: Battery pack (NB-G1U) x 1, Battery holder x 1
--	--

SECTION 1 GENERAL DESCRIPTION

1.1 COMPARISON TABLE OF DIFFERENT PARTS & FUNCTION BY MODEL

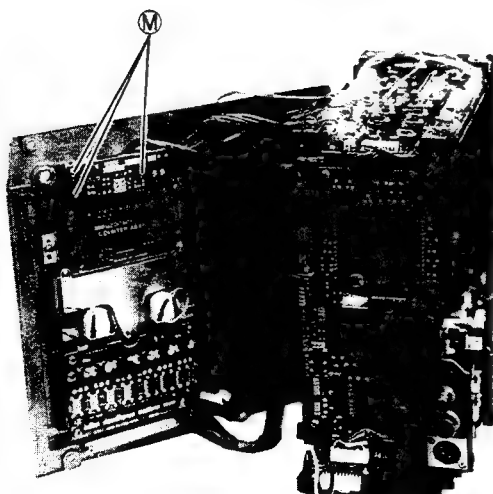
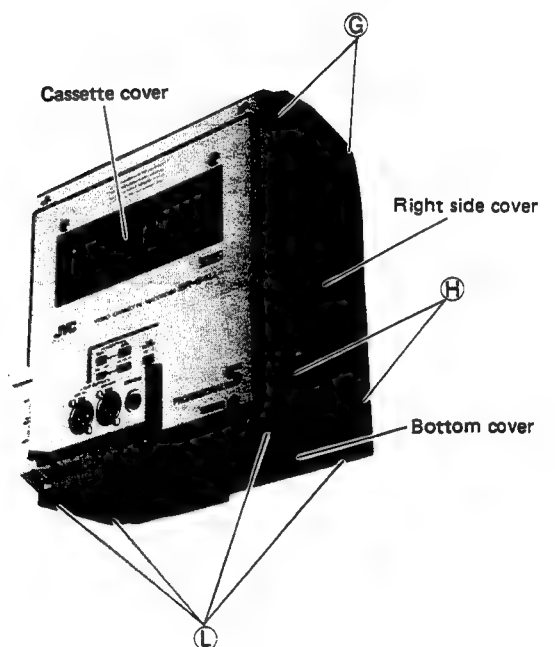
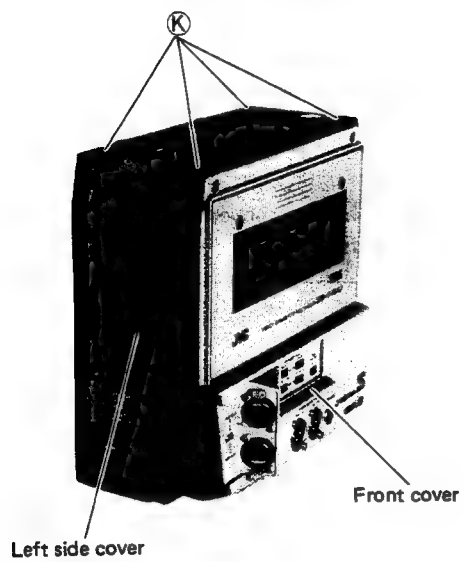
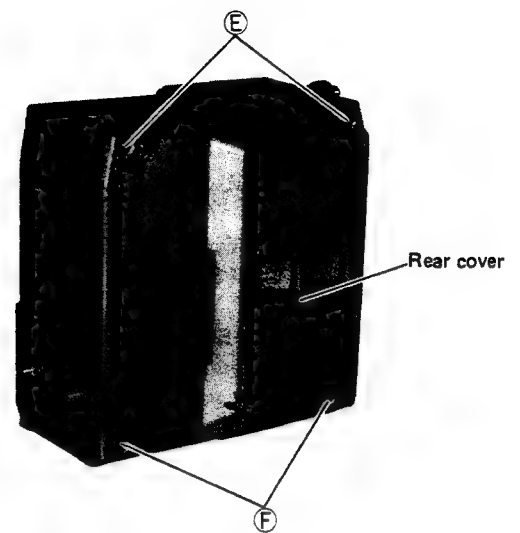
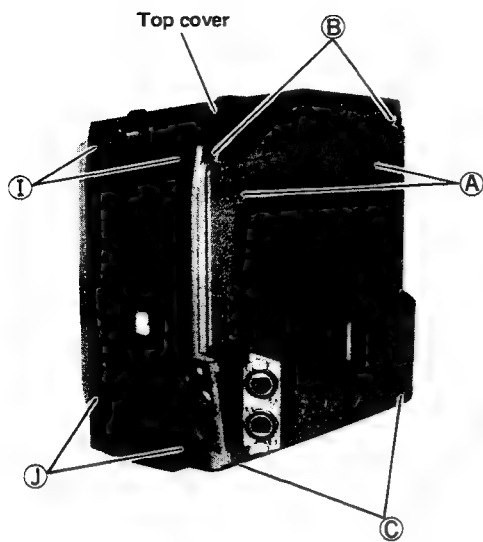
In the following table, branch numbers of parts numbers are omitted. "←" means the same as left, "X" means no installation.

	BR-S411E	BR-S410EX	BR-S410E
Search function	○ (fixed at 9 times)	←	←
Insert editing	AUD-2 DUB.	←	←
VITC ready	○	X	←
Drum assembly	PDV2158D	← (#551)	← (#1746)
Upper Drum	PDM2140B	← (#551)	← (#1746)
A/C Head	PGZ00588	←	←
Full Erase Head	PQ40865A	←	←
Flying Erase Head	○	X	←
Capstan Motor	PGZ00665	←	←
Clutch Mechanism	PGZ01257	← (#401)	← (#1626)
TU Impedance Roller	PRD42434A	X	← (#76)
Cassette Housing	PGS20168C	PGS20168B	← (#76)
ALU circuit	○	X	←
Audio input	BALANCE	UNBALANCE	←
VIDEO PWB	PRK10008A	PGE10107A	←
COLOR PWB	PRK20032A	PGE20230A	←
SERVO PWB	PGE10096A	←	←
MDA PWB	PGE40243A	←	←
AUDIO PWB	PGE10037B	←	←
FM A SUB PWB	PRK30006A	PGE10037B	←
FM A PREAMP PWB	PGE30099B	←	←
REGULATOR PWB	PGE30158A	←	←
SYS CON PWB	PGE20209A	←	←
ERASE PWB	PGE40238A	← (#551)	← (#1746)
FE HEAD PWB	PGE40185	←	←
XLR PWB	PRK20029A	X	←
AUDIO CONNECTOR PWB	PGE40273A	X	←
SWITCH PWB	PGE30055A	←	←
VIDEO PREAMP PWB	PGE20243A	←	←
START SENSOR PWB	PGE40156A	←	←
END SENSOR PWB	PGE40157A	←	←
TU SENSOR PWB	PU56615	←	←
SUP SENSOR PWB	PU58141	←	←
DC IN PWB	PGE40120A	←	←
VIDEO OUTPUT PWB	PGE40100A	←	←
FUSE PWB	PGE40239A	←	←
MAIN SWITCH PWB	PGE40244A	←	←
OPERATION BUTTON PWB	PGE40121A	←	←
COUNTER PWB	PGZ00501A	←	←
DELAY LINE PWB	PGE20229A	←	←
COLOR SUB PWB	PGE20231A	←	←
A/V OUT PWB	X	←	PGE10097A3
ADAPTER 1 PWB	X	←	PGE10097A1
ADAPTER 2 PWB	X	←	PGE10097A2
A/C HEAD PWB	PGE40009	←	←
VITC JUNC PWB	PRK40003A	X	←
AD REC PWB	PRK30011B	X	←
VIDEO (2) PWB	PRK40007A	X	←
EARPHONE PWB	PGE40275A	X	←

1.2 REMOVING EXTERNAL COVERS

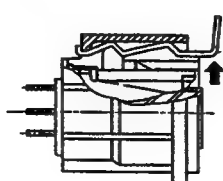
For the most part, the external covers of this model are attached together. The Table lists the screws to be removed or loosened in order to remove a specific cover.

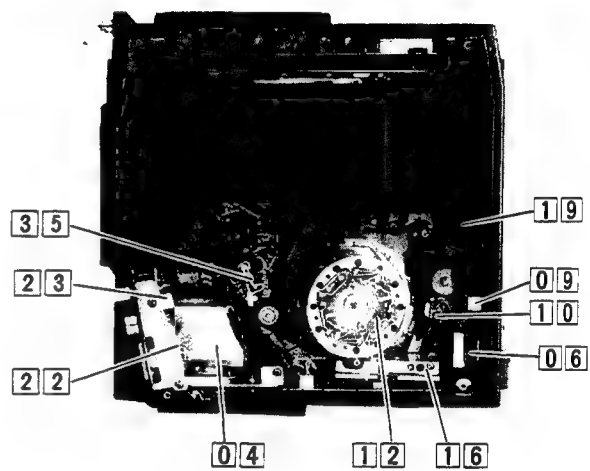
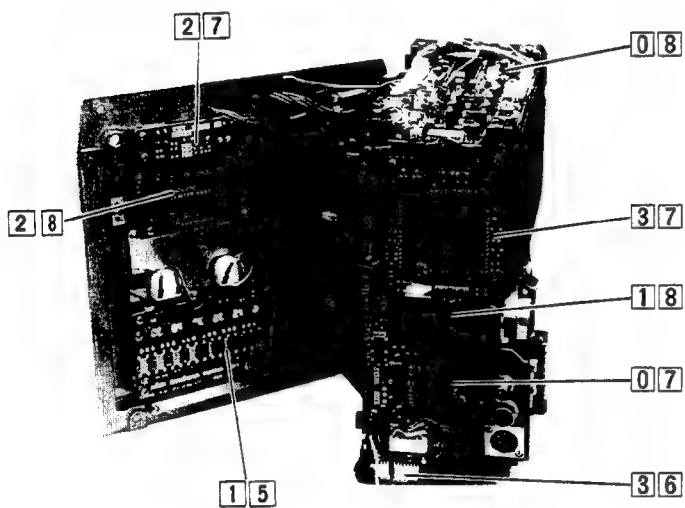
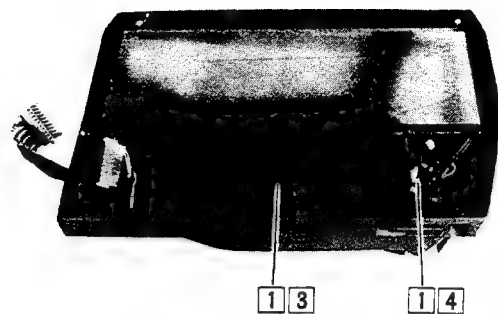
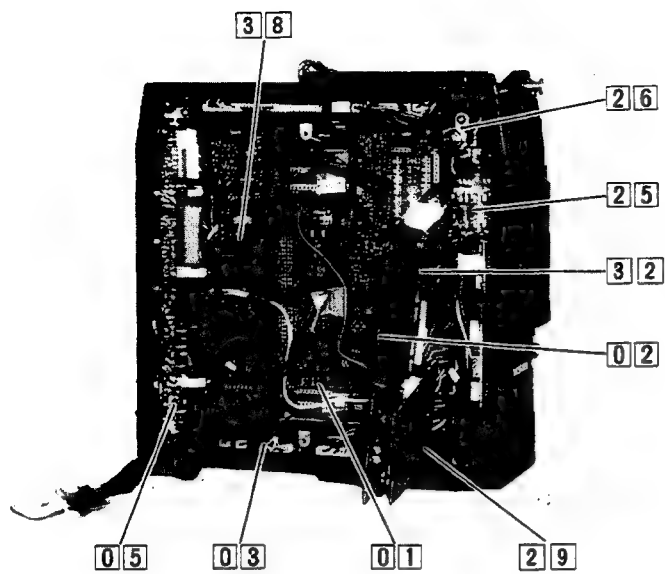
Cover	Remove Screws	Loosen Screws (about 3 turns)	Description
Front (cassette cover)	Screw (A), (B), (C) Total 6	—	The cassette cover can be removed by taking out 2 screws (A).
Rear	Screw (E), (F), (M) Total 7	—	The Operation board [2] [7] is attached to the rear cover by screws (M).
Top	Screw (B), (E), (G) (I), (K) Total 12	Screw (A), (C), (F) Total 6	Remove or loosen screws securing the front and rear covers as necessary when removing and replacing these covers. Notes: 1) Remove camera adapter or battery case when removing the side covers. See operation manual. 2) At the left side cover, the battery case connector is secured by binding.
Right Side	Screw (B), (C), (E), (F), remove one each from right side cover and screws (D), (G), (H) Total 10	Screw (B), (C), (E), (F), loosen 1 each at left side cover and screws (A) Total 6	
Left Side	Screw (B), (C), (E), (F) remove one each from left side cover and screws (I), (J) Total 8	Screw (B), (C), (E), (F) loosen 1 each at right side cover and screws (A) Total 6	
Bottom	Screw (C), (F), (H), (J), (L) Total 12	Screw (A), (B), (E) Total 6	Slightly open the front and rear covers (about 5 mm) when removing. Grasp the left side cover and pull it toward the left to where bottom cover can be separated from the right side cover. Also pull the bottom cover toward the left and disengage the right side cover. Then raise the bottom cover toward the right and remove it. Note: The battery case connector is also secured to the bottom cover by binding.



1.3 REMOVING MAIN BOARDS

Caution: Be sure to cutoff power when removing and inserting circuit boards. Also use care to return boards, connectors, etc. To their initial locations. The Table indicates locations of the main boards.

Group	Board Name	Removal
A	01 VIDEO (38 VIDEO-2 incl.) 02 COLOR (29 PB COMB, 32 COLOR SUB incl.) 05 AUDIO (05 FMA SUB incl.) 15 SWITCH 25 FUSE 26 MAIN SWITCH 27 OPERATION BUTTON	1. Remove rear cover (see Section 1.2). 2. Disengage connectors and screws securing the boards. Notes: 1) SWITCH board is attached to the rear cover. 2) To remove the FUSE board, take out two screws securing the MAIN SWITCH board. Press the FUSE board gently from below to disengage from the bracket. 3) The FUSE and MAIN SWITCH boards include directly soldered wires. 4) Use care regarding wire placement when removing and installing the VIDEO board.
B	09 ERASE 19 END SENSOR	1. Remove right cover (see Section 1.2). 2. Remove screws and nylon rivets securing the boards. 3. Disengage connectors and wires attached to the boards.
	07 REGULATOR 18 START SENSOR 36 VITC JUNC 37 ADVANCE REC	1. Remove left cover (see Section 1.2). 2. Remove screws and nylon rivets securing the boards. 3. Disengage connectors and wires attached to the boards.
C	22 DC IN 23 VIDEO OUTPUT	1. Remove cassette cover, front cover and bottom cover (see Section 1.2). 2. Take out 4 screws securing the SERVO BOARD. 3. Take out 3 screws and remove the board bracket assembly. Note: Connectors are soldered to boards.
D	10 FE HEAD 12 UPPER DRUM 35 A/C HEAD	1. Remove front cover (see Section 1.2). 2. Unsolder board connecting wires.
E	03 SERVO 04 MDA	1. Remove the bottom cover. Slightly pull out the SERVO board and disengage the connectors (also disconnect the MDA board connectors). Pull out the SERVO board to remove it together with the MDA board.
F	06 FM A PREAMP 16 VIDEO PREAMP	1. Remove front, right side and bottom covers (see Section 1.2).
G	08 SYSCON	1. Remove top cover (see Section 1.2). 2. Take out screws securing the board, disengage connectors, and remove the board.
H	13 XLR 14 AUDIO CONNECTOR 39 EAR PHONE	1. Remove front cover (see Section 1.2). 2. Take out screws from board or connectors. 3. Remove connectors from board. Note: When removing the XLR connector from the AUDIO CONNECTOR board, remove the lever indicated in the figure. <div style="text-align: center;">  <p>Raise the lever and pull to remove.</p> </div>



SECTION 2 MECHANISM ADJUSTMENTS

2.1 MECHANISM ADJUSTMENTS

1. Study the manual and proceed with these adjustments only after gaining adequate understanding.
2. This set has been precisely adjusted prior to shipment from the factory. Adjust only after replacing parts and only by the method described here. Avoid disturbing other parts and adjustments.
3. Perform checks and adjustments only when the proper fixtures and test instruments are available. Use extreme care not to scratch or damage mechanical components (especially the tape transport and head drum).
4. Disengage DC IN connector and battery before replacing parts, soldering, etc.
5. Use care not to drop hardware (screws, washers, etc.) into the mechanism. Be sure to retrieve any such parts before returning the set to operation.
6. Note that mechanical and electrical adjustments are inter-related. Perform mechanism adjustments with particular care, since in many cases, they form the bases for the ensuing electrical adjustments.
7. To operate the Play mode without tape, cover the cassette LED and press the PLAY button. When the drum begins rotating, slowly turn the supply reel disk by hand.

Note: Use care since start and end sensors may mis-operate due to external light.

8. Be sure to clean the tape transport system after completing checks and adjustments. Periodic inspection is also recommended for maintaining top condition and avoiding damage to important tapes.

2.2 TOOLS AND FIXTURES

1. The following tools and fixtures are required for performing mechanism adjustments. Attempts to adjust without them would entail a long period of trial-and-error, which still would not yield the required precision and performance.

Note: Also be sure to procure the test instruments and fixtures needed for electrical system adjustments. See Section 3.

2. In addition to special tools, the following test instruments and tools are required.
 - Color TV/monitor
 - Hexagonal (metric Allen) wrenches:
 - for 2 mm (0.9 mm), 2.6 mm (1.27 mm), 3 mm (1.5 mm)
 - Oscilloscope (wide-band, dual-trace)
 - Spare recording tape (T-120)
 - Spare tape for transport checks (T-120)
 - Set of metric screwdrivers
 - Other standard electronics tools (metric where available)

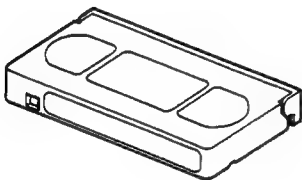
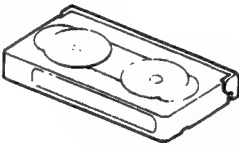
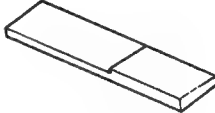
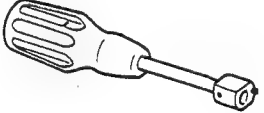
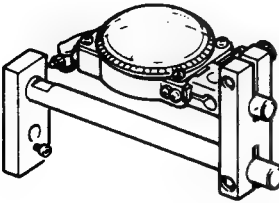

Alignment tape MHPE, MH-F8	Cassette torque meter PUJ42881	Parallel check plate PUJ50204	A/C head positioning tool PUJ47351-2
			
Micro-checker PUJ49712-2	Micro-checker attachment PGJ04006		
			

Fig. 2-1 Special fixtures and tools

2.3 MAIN PARTS LOCATIONS

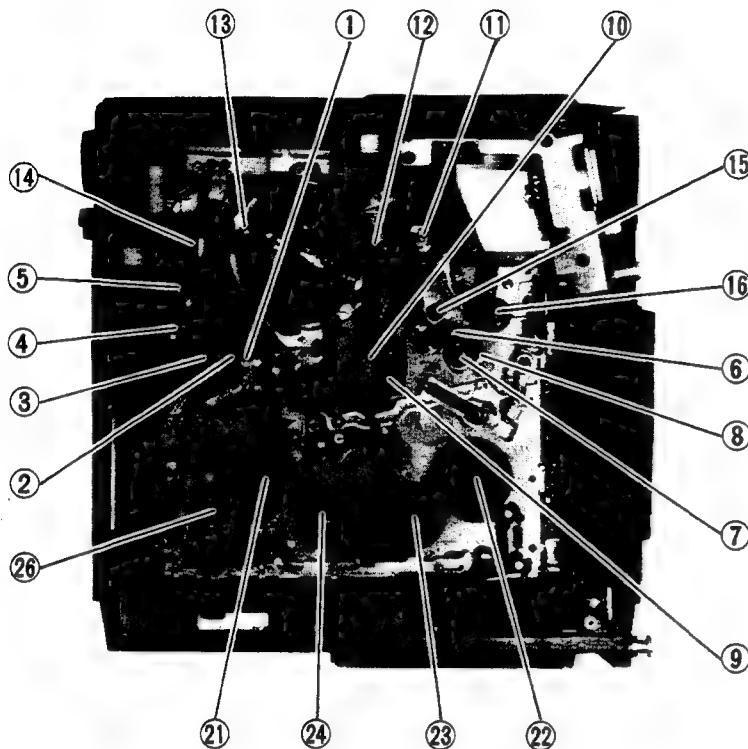


Fig. 2-2 Top view of deck

- ① Tension pole
- ② Supply slanted pole
- ③ Supply guide roller
- ④ Tension roller
- ⑤ Impedance roller
- ⑥ Take-up guide pole
- ⑦ Capstan
- ⑧ Take-up guide assembly
- ⑨ Take-up guide roller
- ⑩ Take-up slanted pole
- ⑪ Take-up Impedance roller
- ⑫ Lower drum assembly
- ⑬ Upper drum assembly
- ⑭ Full erase head
- ⑮ A/C head
- ⑯ Pinch roller
- ⑰ Capstan motor
- ⑱ Reel belt
- ⑲ Mode control motor
- ⑳ Belt
- ㉑ Supply reel disk
- ㉒ Take-up reel disk
- ㉓ Take-up clutch
- ㉔ Supply clutch
- ㉕ Brush
- ㉖ Tension band
- ㉗ Pick-up head

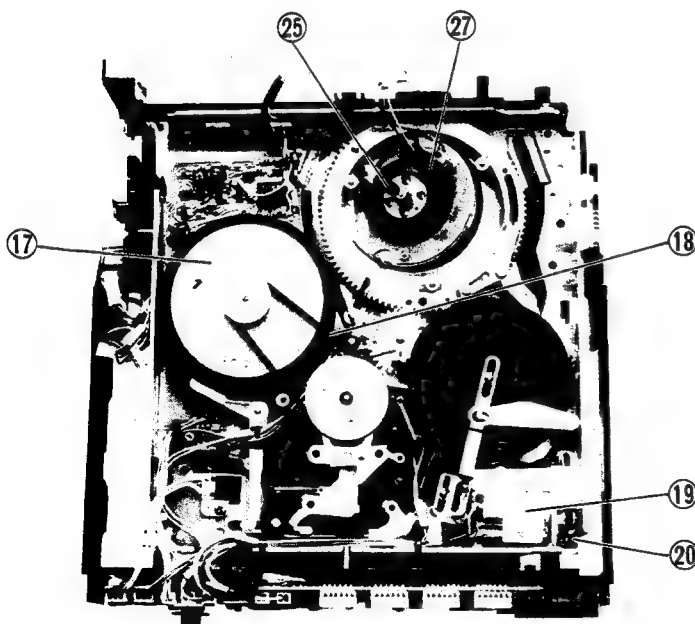


Fig. 2-3 Bottom view of deck

2.4 MAIN PARTS REPLACEMENT TABLE

Periodic inspection and maintenance are needed in order to ensure performance and reliability. The following table has been compiled simply to give a general idea regarding maintenance and inspection. In practice, the periods indicated will vary widely according to environmental and usage

conditions. Also be aware that rubber parts may deform and age even when the equipment is not used. The upper drum life is particularly affected by environmental and usage conditions.

No.	Parts Name	Parts No.	Periodic servicing schedule (operating hours)										Ref. sect.	Remarks
			500	1000	1500	2000	2500	3000	3500	4000	4500	5000		
Tape transport system														
1	Tension pole ass'y	PRD42146A	★	★	★	★	★	★	★	★	★	★	★	Perform cleaning with finely woven cloth or gauze moistened in alcohol. Confirm that the cleaned locations are thoroughly dry before operating the deck. For lubrication, use sewing machine oil or good quality spindle oil. After cleaning with alcohol, apply 1 or 2 drops of oil.
2	Supply slanted pole	Ass'y No.												
3	Supply guide roller	PRD42474A-01												
4	Guide roller	PRD42131												
5	Impedance roller	PRD42129												
6	Take-up guide pole	PU53629-2												
7	Capstan shaft	—												
8	Take-up guide ass'y	PQ40993B												
9	Take-up guide roller	Ass'y No. PRD42473A-01												
10	Take-up slanted pole													
11	Take-up impedance roller	PRD42434A-01												
12	Lower drum ass'y	PDM2078D	★	★	★	★	★	★	★	●	★	★	2.5.3	
13	Upper drum ass'y	PDM2140B	○	●	○	●	○	●	○	●	○	●	2.5.2	
14	Full erase head	PQ40865A	★	★	★	★	★	★	★	★	★	●	2.5.7	
15	A/C head	PGZ00588	★	★	★	●	★	★	★	●	★	★	2.5.8	
16	Pinch roller	PQ41125A	★	★	★	●	★	★	★	●	★	★	2.5.9	
Driving system														
17	Capstan motor	PGZ00665								●			2.5.5	Perform torque check.
18	Capstan belt	PQM30003-12				●				●			2.5.5	
19	Mode control motor	PU56592V								●			2.5.6	
20	Belt	PQM30003-15				●				●			2.5.6	
21	Supply reel disk	PGZ00894-01-01				△				△			2.5.10	
22	Take-up reel disk	PU57581				△				△			2.5.10	
23	Take-up clutch	PU56650-1-4				○				○			2.5.11	
24	Supply clutch	PGZ01258				○				○			2.5.11	
Others														
25	Brush ass'y	PU56798-3	★	★	★	○	★	★	★	●	★	★	2.5.13	Perform back tension check.
26	Tension band ass'y	PQ40851A		○		●		○		●		○	2.5.12	
27	Pickup head	PU57619											2.5.13	

(★ = Clean. ○ = Check, or replace if necessary. ● = Replace. △ = Lubricate.)

Table 2-1 Main parts maintenance and replacement standard

2.5 MAIN PARTS REPLACEMENT

Perform all replacements according to the steps provided below.

Remove external covers, boards, connectors, cassette housing, etc. as required. Avoid unnecessarily disturbing other parts and adjustments.

2.5.1 Cassette housing removal

1. Remove side panel and [3] [7] AD REC board Assembly (See Section 1.3)
Take out screws ① and disengage connector ②. Cut the wiring binder.
Important: Be sure to bind the wires when reassembling.
2. Take out cassette housing screws ④ and lift the housing. As it will contact the nylon structure ③ of the end sensor, very carefully bend the frame by hand to remove the cassette housing. (It is recommended to set the cassette housing to the Eject mode for removing it with ease.)
3. Reinstall the cassette housing by reversing the above steps.

Note: When removing and reinstalling the cassette housing, use care not to contact or apply pressure to the tension roller.

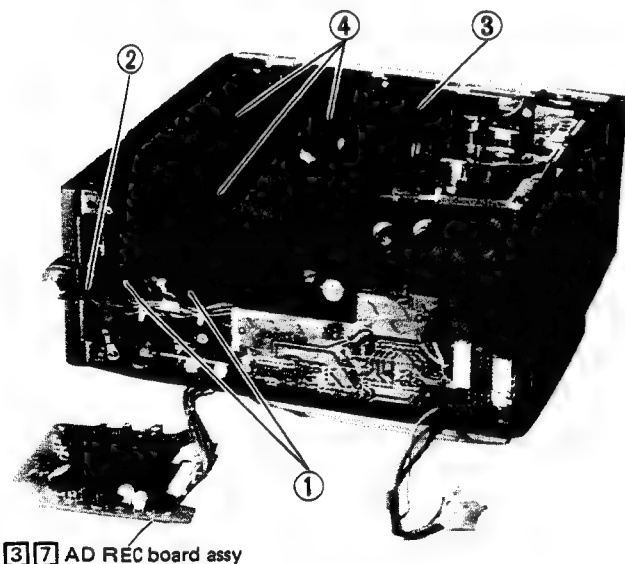


Fig. 2-4

2.5.2 Upper drum replacement

● Drum cleaning:

Moisten Kimwipe* in alcohol or Daifron*. Press with middle finger of right hand against drum (100 to 150 grams pressure). With left hand, turn the upper drum. Perform cleaning in side-to-side direction, while avoiding contact with the heads. By no means wipe in vertical direction, as this may dislodge the heads. To clean the heads, use Xerox* paper. Press against the head (100 to 120 grams pressure) and turn the drum to clean in side-to-side motion; again avoid up-and-down motion.

(* = Registered trademarks. Check with JVC representative for suggested locally available products.)

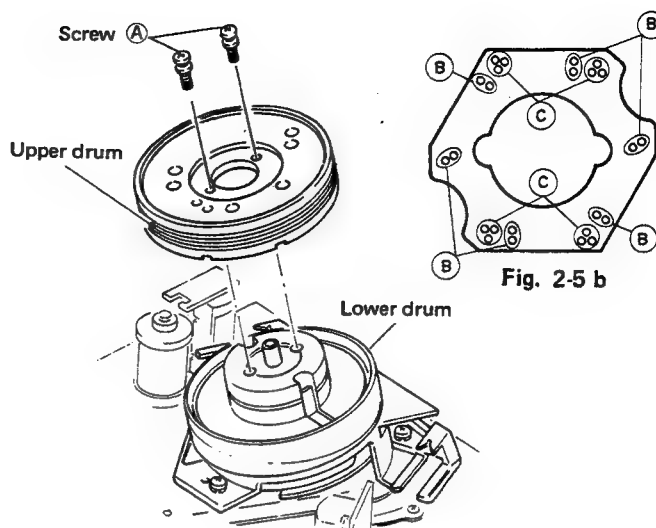


Fig. 2-5 a

1. Remove the cassette housing. (See Section 2.5.1)
2. Unsolder the upper drum board ass'y at the points of (C) and (B) (Fig. 2-5b) and take out the board.
Reference: In such a case of removing the upper drum board together with the upper drum for replacement of the lower drum, etc., unsolder at the point (C) only.
3. Take out 2 screws (A) (Fig. 2-5) and pull the upper drum upwards to remove it.
4. Clean the contacting faces of the new upper drum and the lower drum with alcohol, then install the new upper drum.

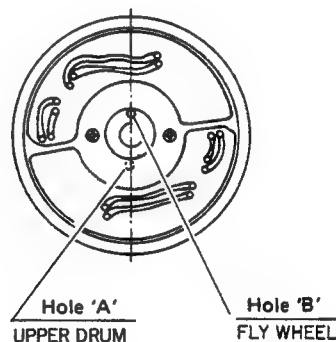


Fig. 2-6

Note: Observe position when installing the new upper drum. As indicated in Fig. 2-6, install with hole 'A' (2.7 mm) 180° opposite hole 'B' (2.0 mm) of the flywheel.

5. After replacing, perform the following checks and adjustments.
 - 1) Upper drum eccentricity (section 2.5.4)
 - 2) Tape transport adjustments (section 2.6.5)
 - 3) Switching point (sections 3.3.7 and 3.3.8)
 - 4) Tracking preset (section 3.3.9)
 - 5) Head resonance (section 3.5.9)
 - 6) FM recording level (section 3.5.10)
 - 7) Color recording and playback level (section 3.5.12)
 - 8) Channel balance (section 3.5.13)

2.5.3 Lower drum assembly replacement

1. Remove bottom cover, [0] [3] SERVO board assembly and [0] [4] MDA board assembly. Disengage CN2. Remove the [1] [6] PREAMP board assembly, and disengage the connectors of the drum head, PU head and FG board.
2. Take out 3 screws (A) (Fig. 2-7) and pull the drum assembly upwards to remove it.
3. Use care not to scratch the new lower drum assembly. Install it by reversing the above steps. Tighten the screws in a well balanced manner.

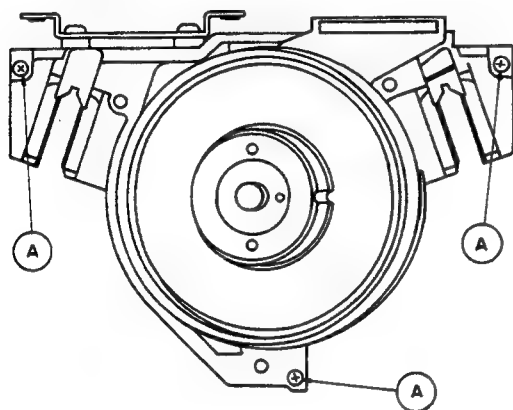


Fig. 2-7

4. After replacing, perform the following checks and adjustments.
 - 1) Upper drum eccentricity (section 2.5.4)
 - 2) Tape transport adjustments (section 2.5.6)
 - 3) Switching point (sections 3.3.7 and 3.3.8)
 - 4) Tracking preset (section 3.3.9)
 - 5) Head resonance (section 3.5.9)
 - 6) FM recording level (section 3.5.10)
 - 7) Color recording and playback level (section 3.5.12)
 - 8) Channel balance (section 3.5.13)

2.5.4 Upper drum eccentricity

Notes:

- 1) Even slight deviation of the upper drum from the drum shaft center can cause jitter and other problems.
 - 2) This adjustment is essential after replacing the upper drum.
1. Remove the cassette housing.
 2. As shown in Fig. 2-8, install the Micro-checker (PUJ-49712-2) and Micro-checker attachment (PUJ04006). Attach to points (A) of the panel.
 3. Slowly turn the fine adjust knob of the Micro-checker clockwise to where the needle indicates "0". The outer rim can be turned about ± 10 scale divisions, but do not turn it beyond this range.
When the Micro-checker contacts the drum assembly, set to where it contacts between the 1st and 2nd groove of the drum.

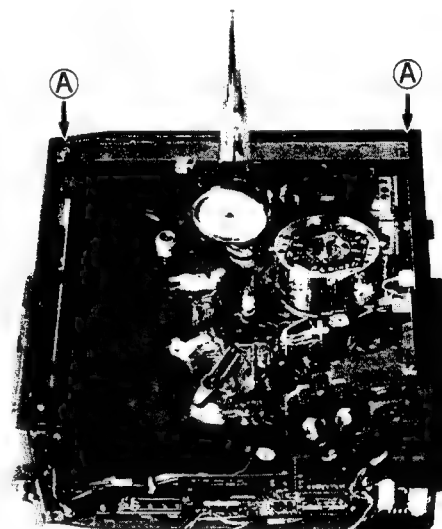
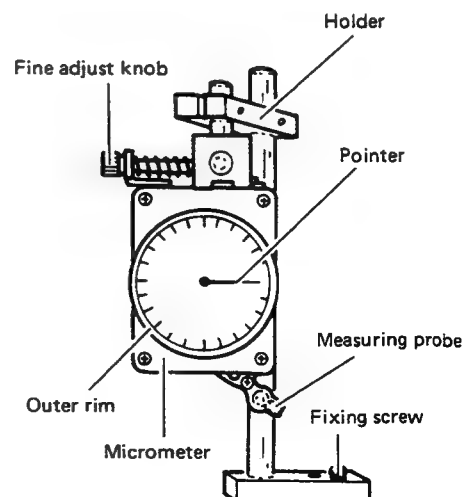


Fig. 2-8 Micro-checker installation

● Micro-checker cautions

- 1) The Micro-checker is a high precision instrument. Use care not to drop it or subject it to strong shock.
- 2) Do not apply strong force to the measuring probe.
- 3) The position and directional relationship of the Micro-checker and holder have been predetermined. Do not disassemble or change these relationships.
- 4) Although the outer rim of the Micro-checker can be turned in the range of ± 10 scale divisions, do not apply excess force (more than 300 g-cm) to this section.
- 5) By no means allow the Micro-checker to contact the heads.
- 6) Before installing the Micro-checker, turn the fine adjust knob counterclockwise. When installing it, use care not to contact the upper drum.
- 7) When installing, observe that the probe is pointed toward the center of the upper drum.
- 8) Gritty or rough sound during measurement indicates unnatural contact. Check for contamination of the upper drum and measuring probe.



4. Slowly turn the upper drum, while using care not to apply sideways pressure. Needle deflection within 2 microns peak-to-peak (± 1 micron) is required.
5. If deflection exceeds this range, turn the fine adjust knob counterclockwise to separate the probe from the upper drum. Loosen the two screws of the upper drum and very carefully adjust the position. Then retighten the screws.
6. Again measure the eccentricity. Repeat the above steps until deflection is within 2 microns p-p.
7. After confirming 2 microns p-p, turn the fine adjust knob counterclockwise and remove the Micro-checker.
8. Turn the Tracking control and confirm that CH1 and CH2 FM waveforms reach maximum simultaneously.
9. If abnormal, remove the upper drum. Clean the lower face of the upper drum and the upper face of the lower drum flywheel. Again install the upper drum and repeat above steps 1-9.

2.5.5 Capstan assembly replacement

Note: The capstan assembly consists of capstan motor, capstan FG board and flywheel. These cannot be replaced independently.

1. Disengage the reel belt from the capstan motor and connector CN6 from the servo board.
2. Take out the main deck screws (Fig. 2-9), shift the capstan brake and remove the capstan motor.
3. Install new capstan motor by reversing the above steps.

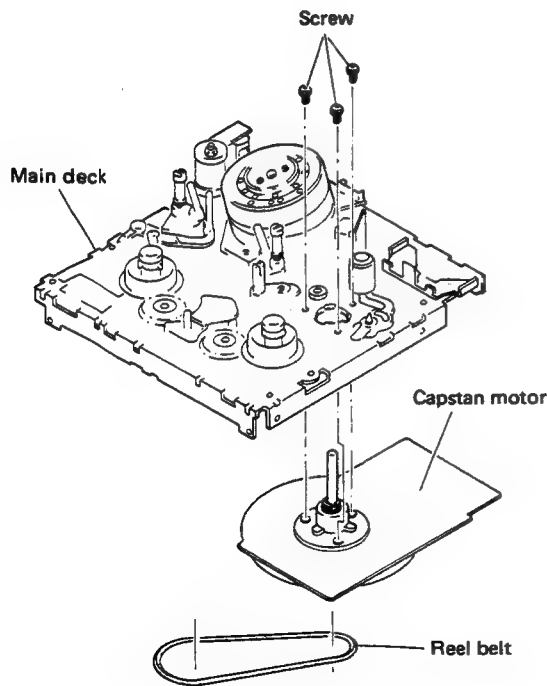


Fig. 2-9

2.5.6 Mode control motor replacement

Note: When replacing only the mode control motor, use care regarding wire polarity.

1. Disengage connector CN10 from the mechacon board.
2. Take out screws (Fig. 2-10) and remove the motor bracket.
3. Install new mode control motor by reversing the above steps.

* If replacing only the mode control motor, proceed to the following steps.

4. After removing the motor bracket, remove wires from the mode control motor.
5. Disengage the belt from the mode control motor, take out screws and remove the mode control motor.
6. Install new mode control motor by reversing the above steps. Use care regarding wire polarity (see Table 2-2).

Motor polarity	Wire color
+	Red
-	Brown

Table 2-2 Motor wiring

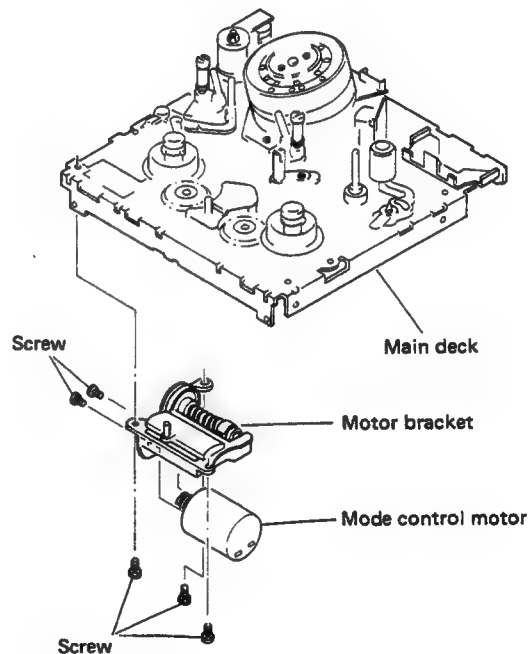


Fig. 2-10 Mode control motor replacement

2.5.7 Full erase (FE) head replacement

1. Take off nut (Fig. 2-11) and remove the impedance roller and its peripheral parts.
2. Disengage connector CN2 from the FULL ERASE board.
3. Remove the spring and remove the FE head in the upward direction.
4. Install a new FE head and reassemble the impedance roller and its peripheral parts.
5. Perform impedance roller height adjustment (section 2.6.5) and interchangeability checks and adjustments (section 2.6.6).

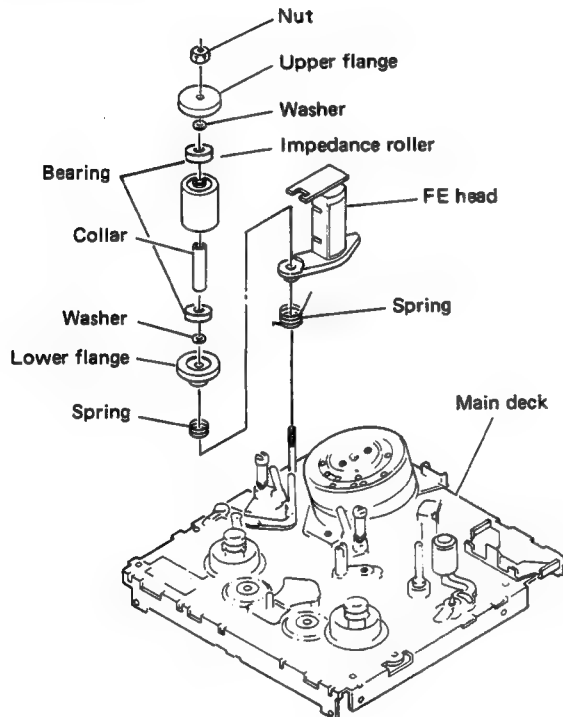


Fig. 2-11 FE head replacement

2.5.8 Audio/Control (A/C) head assembly replacement

Note: Use care not to misplace the coil springs of the A/C head base (these are apt to fly off).

1. Take out 2 mounting screws of the head base and remove the head base.
2. Unsolder and remove the head board.
3. Install a new A/C head at the position indicated in Fig. 2-12.
4. Remount the head base in the previous position.
5. Perform A/C head parallel adjustment (section 2.6.5) and interchangeability checks and adjustments (section 2.6.6).

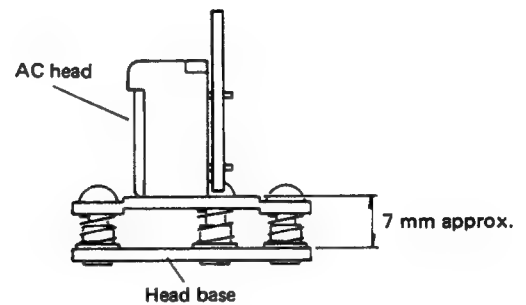


Fig. 2-12 A/C head installation

2.5.9 Pinch roller assembly replacement

1. Take out screw (Fig. 2-13) and remove the pinch roller and its peripheral parts.
2. Install a new pinch roller; secure collar and PR cap with screw.

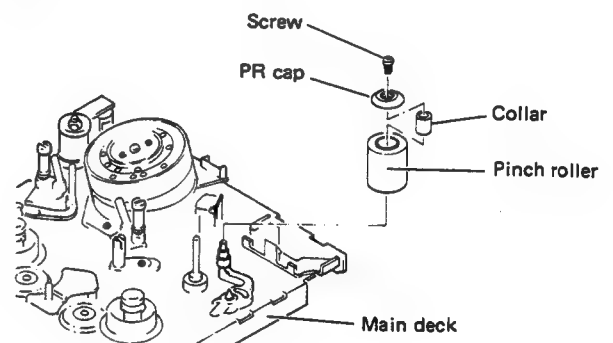


Fig. 2-13 Pinch roller replacement

2.5.10 Reel disk replacement

Note: Do not reuse nylon washers. Procure new parts before disassembly and replacement.

• Supply reel disk

1. Disengage the tension band from the tension pole and shift it to one side. This releases the FF brake from the supply reel disk.
2. Take off the slit washer and with the FF brake free, pull the supply reel disk upward to remove it.

Note: Use care regarding washer at bottom of the supply reel disk.

3. Clean reel shaft with alcohol and apply a small amount of oil.
4. Install a new supply reel disk by reversing the above steps.
5. Perform back tension check (section 2.6.4).

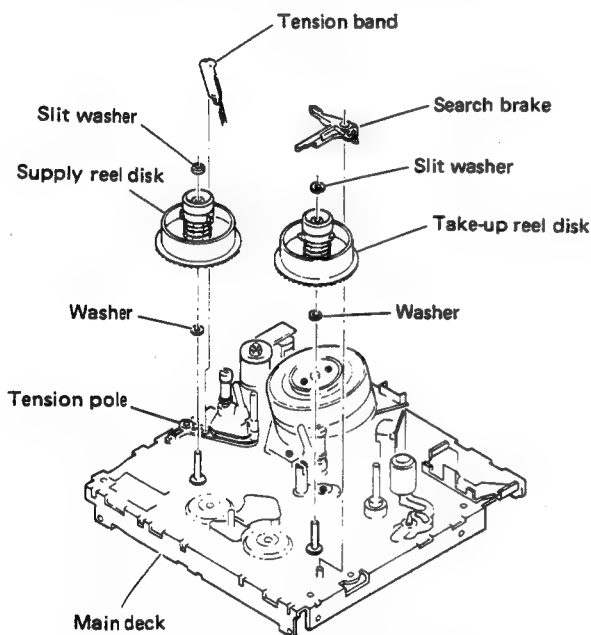


Fig. 2-14 Reel disk replacement

2.5.11 Clutch replacement

• Take-up clutch

1. Remove the take-up reel disk (section 2.5.10).
2. Take off the slit washer and pull the take-up clutch upward (note lower washer) to remove it.
3. Install a new take-up clutch by reversing the above steps.
4. Perform take-up torque check (section 2.6.3).

• Supply clutch

1. Remove the supply disk (section 2.5.10).
2. Take off the slit washer and pull the supply clutch upward (note lower washer) to remove it.
3. Install a new supply clutch by reversing the above steps.

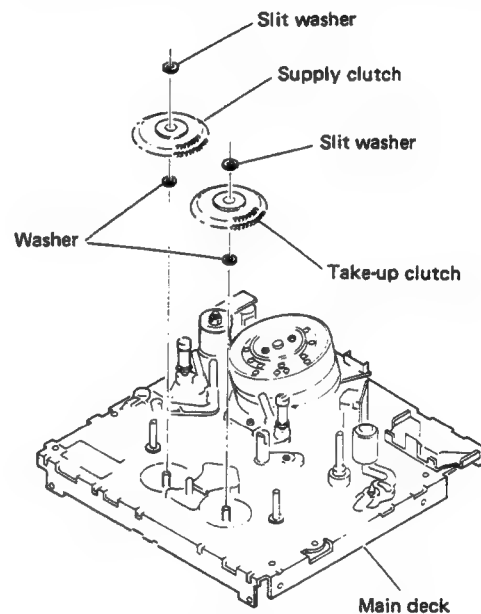


Fig. 2-15 Clutch replacement

• Take-up reel disk

1. Disengage the spring from the search brake and remove the search brake.
2. Take off the slit washer and with the REW brake free, pull the take-up reel disk upward to remove it.

Note: Use care regarding washer at bottom of the take-up reel disk.

3. Clean reel shaft with alcohol and apply a small amount of oil.
4. Install a new take-up reel disk by reversing the above steps.

2.5.12 Tension band replacement

1. Take out screw (Fig. 2-16) and separate the tension band from the tension pole.
2. Shift the FF brake and remove the tension band.
3. Install the new tension band.
4. Perform tension pole position adjustment (section 2.6.2) and back tension check (section 2.6.4).

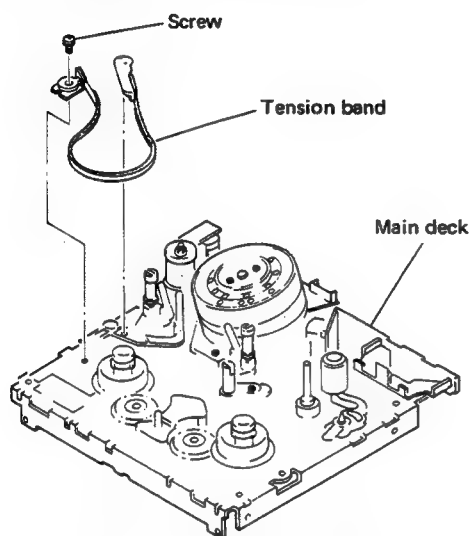


Fig. 2-16 Tension band replacement

2.5.13 Brush and pick-up head replacement

1. Take out screw (A) (Fig. 2-17) and replace the brush.
Note: Align the brush with the lock hole, then loosen the screw.
2. Unsolder the pick-up head, take out screw (B) and replace the pick-up head.
Note: Set the pick-up head toward the center of the drum shaft when installing.
3. Perform drum pulse adjustment (section 3.3.1) and PB/REW switching point adjustment (sections 3.3.7 and 3.3.8).

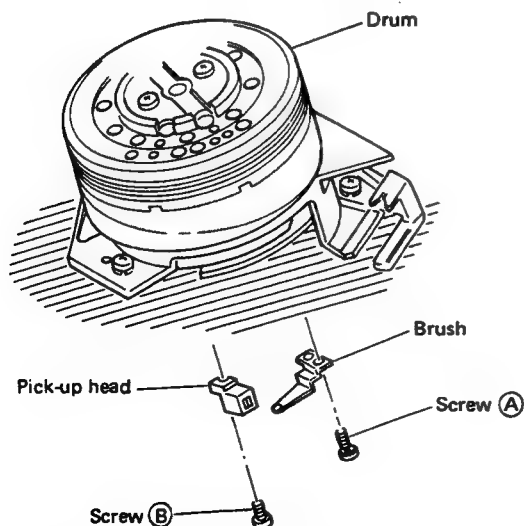


Fig. 2-17 Brush and pick-up head replacement

2.6 CHECKS AND ADJUSTMENTS

2.6.1 Loading mechanism timing

1. When the STOP mark of the control cam faces the center of the loading gear, confirm that boss of loading gear ① faces hole (A) of the supply loading ring (Fig. 2-18).
2. At the same time, confirm that the holes of the supply and take-up loading rings overlap the hole of the main deck (arrow (B) in Fig. 2-18).
3. If deviation is confirmed, remove the control cam. Reinstall the loading gears and connect gear ② so as to obtain the correct positions. To reinstall the control cam, turn loading gear ② counterclockwise to where the holes of loading gears ① and ② overlap, then install.

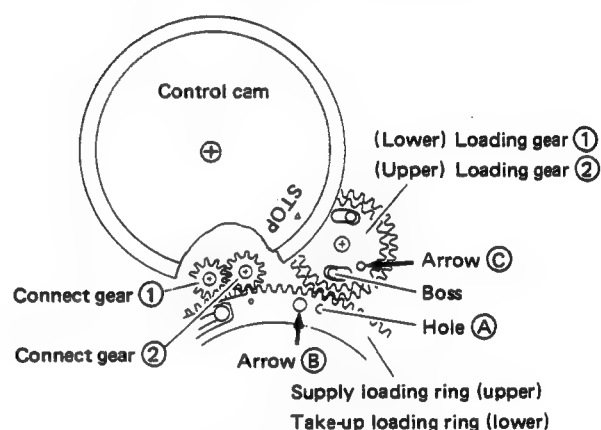


Fig. 2-18 Timing check

2.6.2 Tension pole position (temporary)

1. Without tape, set for the Play mode, then power OFF (see Section 2.1).
2. Remove the cassette housing (see Section 2.5.1).
3. As indicated in Fig. 2-19, adjust the tension band holder securing position so that the end of the tension pole overlaps the left edge of the main deck.

Note: This is a temporary adjustment. If the holder position was moved, be sure to perform the back tension checks and adjustments of Section 2.6.4.

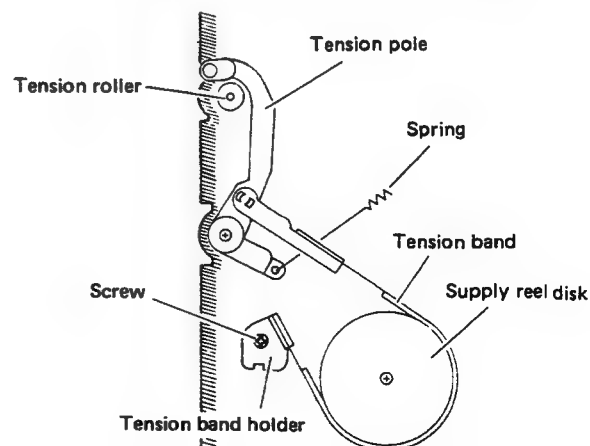


Fig. 2-19 Tension pole position

2.6.3 Take-up torque

1. Use the cassette torque meter (PUJ42881) and set to the play mode.
2. Confirm take-up torque of 60 to 100 gcm. If outside this range, replace the take-up clutch (see Section 2.5.11). The supply clutch should also be replaced.

2.6.4 Back tension

1. Use the cassette torque meter (PUJ42881) and set to the Play mode.
2. Confirm supply torque of 24 to 26 gcm. If outside this range, check the wear of the tension arm spring and tension band. Loosen the screw and adjust the tension band holder securing position to where specifications are met. However, if the value varies widely, also replace the supply reel disk (see Section 2.5.10).

2.6.5 Tape transport system checks and adjustments

Note: The tape transport has been precision-adjusted at the factory and ordinarily does not require readjustment. Perform the following only after confirming problem is in the transport or after replacing parts affected by long term usage.

[1] Tape transport checks

1. Use a spare 180-minute tape. Set for the Play mode at the beginning and end portions of the tape.
2. In the Play mode, confirm absence of tape drift upwards or downwards at the drum intake and exit.

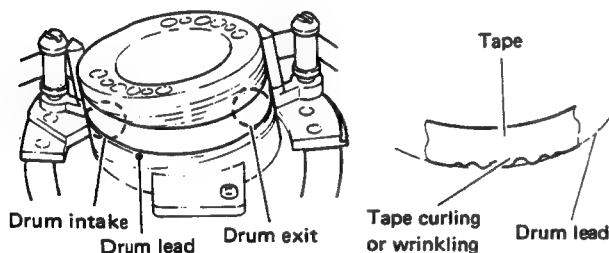


Fig. 2-20 Drum and drum lead

Notes: * With upward drift, the video heads strike the edge of the tape and sound can be heard.

* In case of downward drift, tape curling or wrinkling may occur, and abnormal sound can be heard.

* If abnormal, adjust the guide roller height (see following).

3. In the Play mode, observe the tape between the impedance roller and take-up guide pole. Confirm absence of curling and wrinkling. If abnormal, adjust the impedance roller height and the A/C head inclination.
4. In Search Forward and Search Reverse, inspect all guides and confirm absence of tape damage.
5. When switching between Search FWD and Search REV, confirm absence of tape wrinkling between the capstan and tape guide pole.

6. When switching between Search FWD and Play, confirm absence of tape wrinkling between the take-up guide pin and take-up guide pole.

After checking as above, perform interchangeability checks and adjustments (see Section 2.6.6).

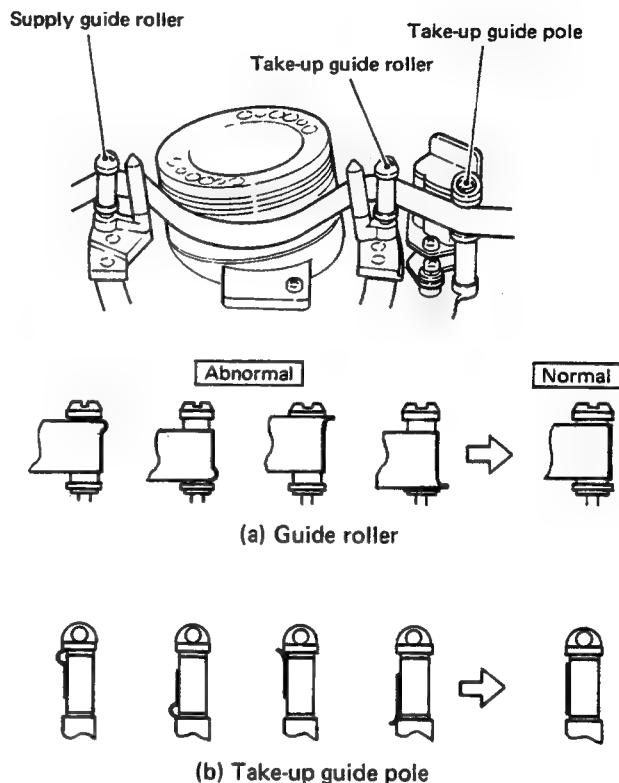


Fig. 2-21

[2] Guide roller height adjustment

1. Loosen the guide roller setscrew (Fig. 2-22) just enough to allow turning the guide roller.
2. Use spare tape and set for the Play mode.
3. Turn the guide roller by small amounts and adjust to where the tape traverses the drum lead without drifting from it.
4. After adjusting, be sure to tighten the setscrew.

Turn by an ordinary (—) screwdriver.

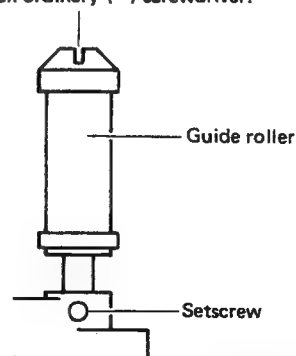


Fig. 2-22 Guide roller height adjustment

[3] Impedance roller height adjustment

1. Use spare tape and set for the Play mode.
2. Turn the upper nut of the impedance roller and adjust to where the lower edge of the tape travels at the bottom edge of the impedance roller.

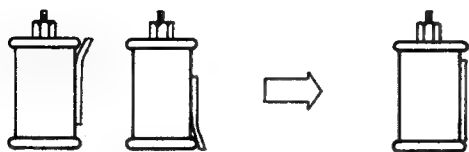


Fig. 2-23 Impedance roller height adjustment

[4] Audio/control head parallel

1. As illustrated in Fig. 2-24, set the parallel check plate (PUJ50204) gently against the A/C head take-up guide pole. Confirm that inclination A is less than 0.1 mm.
2. Set the flat portion of the check plate gently against the A/C head. Confirm absence of space at top, as shown by (B).

Important: Do not adjust the height or inclination of the take-up guide pole itself.

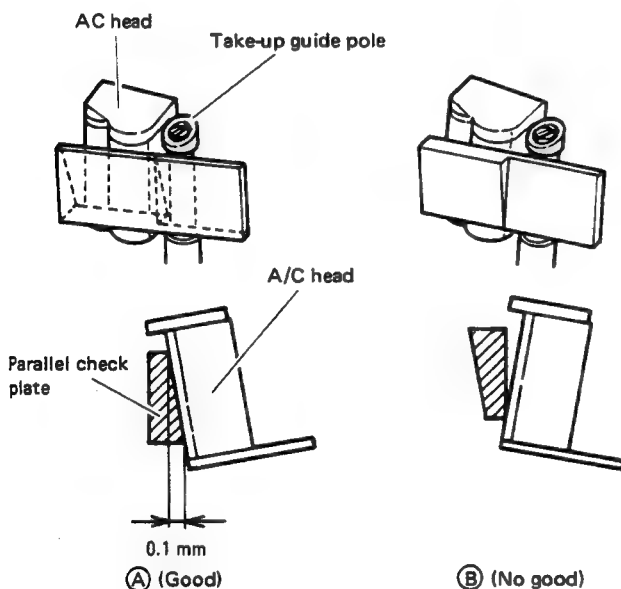


Fig. 2-24 A/C head parallel

[5] Take-up guide pin adjustment

1. Use a spare 180-minute tape which contains a recorded signal and alternate between REC Play and Pause. Confirm smooth tape transport and absence of curling or wrinkling at the take-up guide pin.
2. Also confirm in the Play mode.
3. If abnormality is confirmed, turn the take-up guide set-screw (2 mm) to adjust. See Fig. 2-25.

Notes:

- 1) Perform this after adjusting the audio/control head parallel (above 4).
- 2) The effect of turning the setscrew does not appear for about 2 or 3 seconds.
- 3) Set to Stop, and again to Search Reverse, then repeat the adjustment.

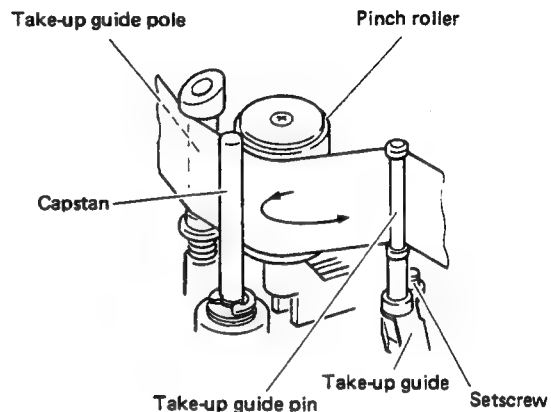


Fig. 2-25 Tape path adjustment

2.6.6 Interchangeability checks and adjustments

Note: Before using Alignment tape, use a spare tape and confirm normal transport operation.

[1] FM waveform checks and adjustments

1. Connect an oscilloscope to Pre-Rec board TP4 (FM OUT). Trigger the oscilloscope externally with the signal from Servo board TP4 (D FF). (TP9 can be connected from the battery terminal box without removing the bottom cover.)
2. Play the stairstep signal of the MHPE Alignment tape.

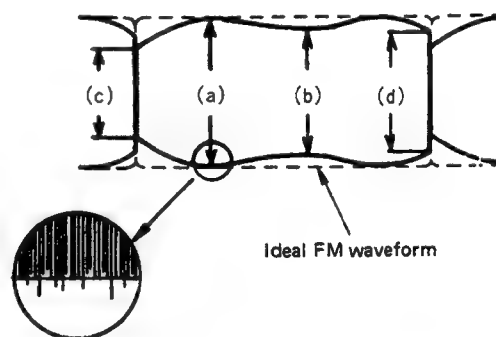


Fig. 2-26 FM waveform (maximum output)

Note: If the waveform is serrated, read the output level where the serrations are most closely aligned.

3. Turn the Tracking control and set for maximum FM output waveform.
4. Adjust the oscilloscope to set the maximum waveform to 4 scale divisions.
5. Confirm that depressions at the drum intake (c) and drum exit (d) exceed 3.4 scale divisions (Fig. 2-26).
6. Confirm that variations at (b), (c) and (d) are greater than 3.6 scale divisions.

7. Turn the Tracking control to both extremes and confirm that variation of the FM waveform is nearly linear (Fig. 2-27).

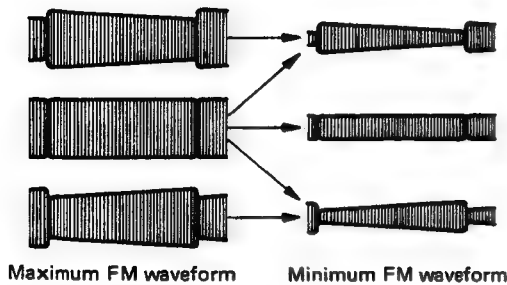


Fig. 2-27 Normal waveform variation



Fig. 2-28 Abnormal waveform variation

8. If variation is distorted, as illustrated in Fig. 2-28, perform audio/control head adjustment. If this is inadequate, proceed to the following steps.
9. Loosen the setscrews of the supply and take-up guide rollers to permit turning.
10. Turn the tracking control to maximum FM waveform output. If the portion at the drum intake appears as shown by (A) in Fig. 2-29, adjust the supply guide roller to obtain a flat waveform as shown by (B).

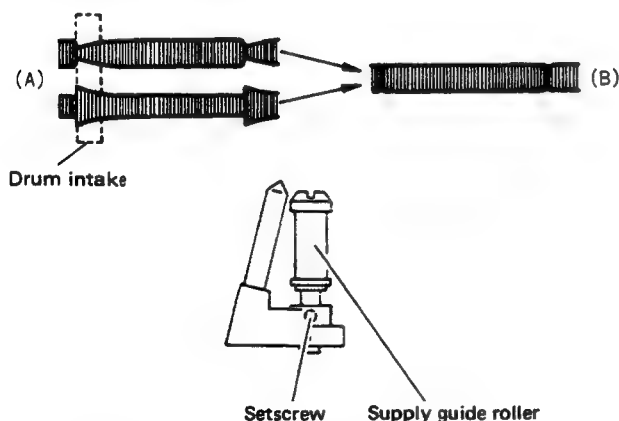


Fig. 2-29 Drum intake waveform adjustment

11. If the portion at the drum exit appears as shown by (C) in Fig. 2-30, adjust the take-up guide roller to obtain a flat waveform as shown by (D).

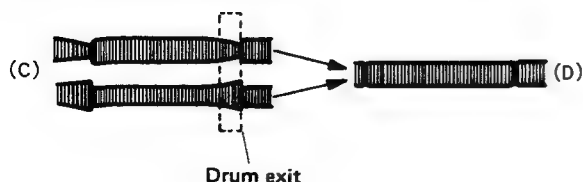


Fig. 2-30 Drum exit waveform adjustment

12. Again confirm absence of tape curling or wrinkling at the impedance roller and take-up guide pole. If abnormality is confirmed at the impedance roller, fine-adjust the impedance roller height.

If abnormality is confirmed at the take-up guide pole, adjust the audio/control head inclination (see section 2.6.5).

13. Turn the tracking control for minimum FM waveform output. If the waveform appears as shown by the examples (A), (B), (C) or (D) of Fig. 2-31, fine-adjust the supply and take-up guide rollers to obtain a waveform as shown by examples (E), (F) and (G).

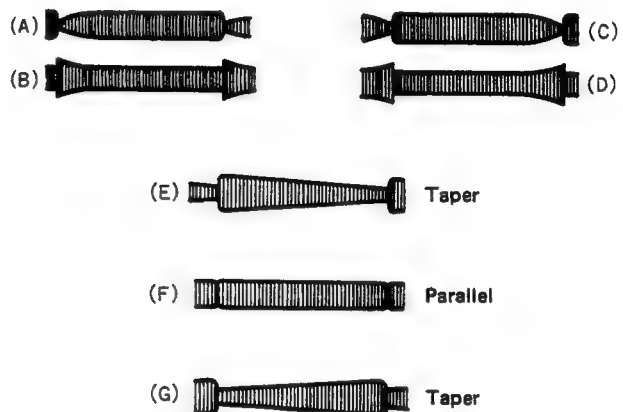


Fig. 2-31 FM waveform at minimum output

Note: If waveform varies, adjust at the point of minimum variation.

[2] Audio head height and azimuth adjustment

If the audio/control head position is incorrect, S/N is impaired during tape playback.

1. Connect AUDIO-1 and AUDIO-2 output signals to CH1 and CH2 of a dual-trace oscilloscope.
2. Play the 6 kHz (stairstep) signal of the MHPE Alignment tape.
3. While observing the output signals, turn screw © (Fig. 2-33) for maximum waveforms and absence of phase difference (Fig. 2-32).

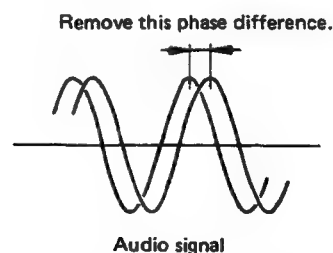


Fig. 2-32 Audio signal phase adjustment

- Turn screws **A**, **B** and **C** by small and equal increments at a time and adjust for maximum audio output. With screw **A** as reference, screw **B** adjusts inclination and screw **C** adjusts azimuth.

- Gently press the tape upwards and downwards at the A/C head area. Confirm that the level does not increase.

Notes:

- 1) In order to avoid damaging the Alignment tape, do not turn screw **A** more than 1/4-turn at a time.
 - 2) After adjusting screw **B**, be sure to adjust audio azimuth with screw **C**.
- Repeat above steps 3 to 5. Adjust for maximum audio output with minimum variations.

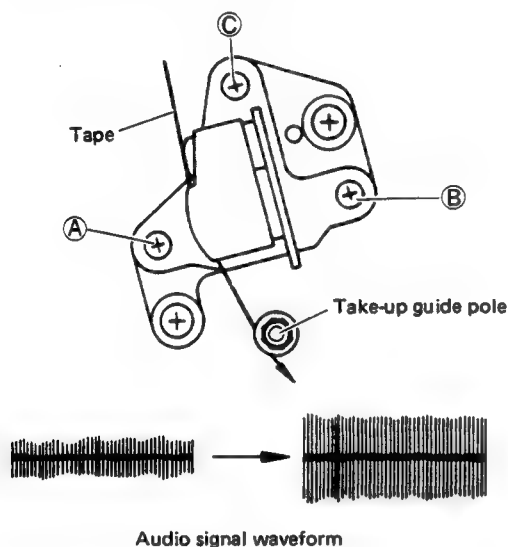


Fig. 2-33 Audio/control head adjustment

[3] Setscrew tightening

- After confirming normal tape transport, set to the Stop mode and tighten the setscrews.

Note: Use care not to disturb the guide roller adjustments.

- Again use the MHPE Alignment tape and perform FM waveform checks.

[4] Servo circuit adjustments

- Adjust the PB/REC switching point (sections 3.3.7 and 3.3.8).
- Perform tracking preset adjustment (section 3.3.9).

[5] Control head phase

- Connect the oscilloscope to Pre-Rec board TP4 (FM OUT). Trigger the oscilloscope externally with the signal from Servo board TP9 (D FF). (TP9 can be connected from the battery terminal box without removing the bottom cover.)
- Play the stairstep signal of the MHPE Alignment tape. Set the oscilloscope trigger to (-) slope and observe the CH1 waveform.
- Confirm that maximum FM output is obtained at the center detent (AUTO) position of the Tracking control. If the maximum is not at center, set the control to the center and perform the following steps.
- Loosen screws **D** and **E** (Fig. 2-34) to the degree that allows sliding the A/C head. Slide the A/C head fully toward the capstan direction.
- Set the A/C head positioning tool (PUJ47351-2) onto screw **E** with the pin of the tool inserted into the hole.
- Slowly turn the tool to shift the A/C head assembly in the direction shown by the arrow. Set to the point for maximum FM waveform.

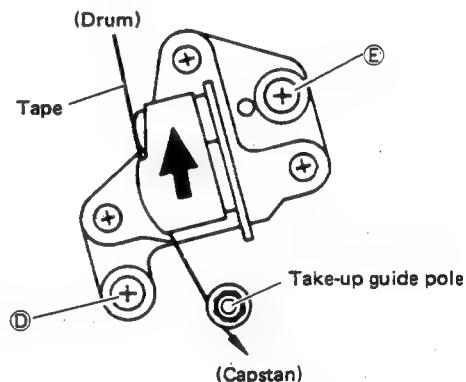


Fig. 2-34 Control head phase adjustment

- While using care not to disturb the A/C head setting, tighten screws **D** and **E**.
- Turn the Tracking control and confirm maximum FM waveform at the center detent position.

Note: Tighten screws **D** and **E** so as not to vary the FM waveform.

[6] Video and FM audio tracking phase check

1. Connect CH1 of a dual-trace oscilloscope to TP2 (FMA OUT) of the FM Audio Amp board and CH2 to TP4 (FM OUT) of the Video Preamp board.
2. Play portion (2) (Stairsteps, FM Audio Carrier only) of the MH-F8 Alignment tape.
3. Turn the Tracking control for maximum audio FM envelope. Set the waveform to 4 scale divisions.
4. Then turn the Tracking control for maximum video FM envelope. At this time, confirm that the audio FM envelope is more than 3.6 scale divisions (compare at maximum level point).
5. If above waveform control cannot be obtained, the upper drum unit may require replacement.

[7] REC/PB FM level checks

1. For FM video, use a test pattern signal input. For FM audio do not apply a signal (but supply a test pattern video input).
2. Adjust the Tracking control for maximum waveform at all check points. Set the maximum waveform to 4 scale divisions.
3. If the FM level varies or if there is FM loss, check according to Table 2-3.

Check Item	Check Point	Set mode & Tape used	FM level (within)	FM Loss (within)
FM VIDEO	V. PRE AMP TP-4	VHS	3.6 scale div.	3.6 scale div.
FM VIDEO	V. PRE AMP TP-4	S-VHS	3.6 scale div.	3.4 scale div.
FM AUDIO	FMA PRE AMP TP-2	S-VHS	3.4 scale div.	3.2 scale div.

Table 2-3

4. If above waveforms cannot be obtained, the upper drum unit may require replacement.

Note: Use tape that has not been damaged for checking.

[8] Final checks

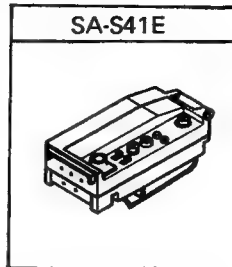
1. In the Play mode, inspect each of the shafts, rollers and head section of the transport and confirm absence of tape curling, wrinkling or drifting.
2. Record and play back a stairstep signal. Confirm that playback compares closely with the Alignment tape.
3. Observe FM waveform difference between when the set is lying flat and when it is standing vertically. With the maximum at 4 scale divisions, confirm more than 3.8 scale divisions at the other position. Also confirm above items 1 and 2 at these configurations.
4. Perform drum and capstan circuit checks and adjustments (section 3.3).
5. Perform audio circuit checks and adjustments (section 3.4).
6. Perform video circuit checks and adjustments (section 3.5).

SECTION 3 ELECTRICAL ADJUSTMENTS

3.1 PRELIMINARY CHECKS AND CAUTIONS

1. Since the BR-S411E is equipped with no VIDEO IN terminal nor AUDIO LINE IN terminal, it is required to connect an adapter (SA-S41E) for adjustment of this model.

Note: When the SA-S41E is used, make sure to confirm the following matters.



	50-pin connector	Level (1k-ohm termination)
Y OUT LEVEL	Pin 1	1 Vp-p
C OUT LEVEL	Pin 2	0.3 Vp-p (Burst level)

2. Adjustments are required after replacing the video heads, major mechanical parts and parts of the electrical circuits. In all cases, first confirm that adjustment of a specific part is actually needed before disturbing its setting.
3. If mechanism adjustments have been performed, again check that these are correct and precise before proceeding to electrical adjustments.
4. All adjustments are performed in the circuit boards.
5. Avoid unnecessary interrupting power while tape is running. This may damage the tape.
6. If warning message is displayed, remove tape, shut off power, and correct the cause before proceeding further.

- Waveform monitor
- Digital voltmeter (capable of reading down to 1 mV DC)
- Sweep signal generator (100 kHz to 10 MHz)
- Oscilloscope (dual-trace, better than 500 MHz)
- Monitor-TV
- Vectorscope
- Audio tester

3. Recommended additional fixtures

1) Shorting lead

This can be constructed easily as shown in the figure. It is used for shorting test pins.

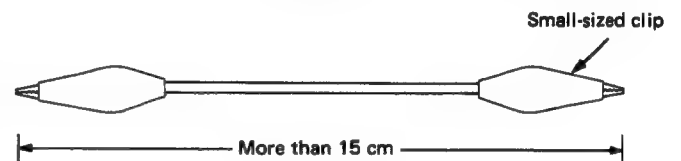


Fig. 3-2

2) Pach cord (PGJ05020)

To be used between the COLOR PWB and the COLOR SUB PWB or the PB COM PWB, and used between the AUDIO PWB and the FMA PWB for measuring voltage and relating repair. (Refer to Fig. 3-3.)

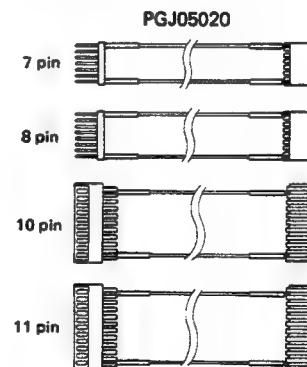


Fig. 3-3

3.2 REQUIRED TEST INSTRUMENTS AND FIXTURES

1. The following test instruments and fixtures (see Fig. 3-1) are required for electrical adjustments. Attempts to adjust without them would entail inordinate time and would not yield the required precision and performance.
2. In addition to the special fixtures, check that the following test equipment is available.
 - Frequency counter (better than 10 MHz, 100 mV sensitivity, high impedance input)
 - Video signal generator (Model 1411, TG7/2 or equivalent)
 - Video noise meter

Alignment tape	Carrier checker	* HEAD RESO. JIG	DUB OUT Cable	DUB IN cable
MHPE, MH-8, MH-F8, MHVE-2H, MHVE-2, MHAE	PGJ05008-2	PGJ05031	PGJ05018	PGJ05028

Fig. 3-1 Required special test equipment

* New fixture

3.2.1 Alignment tape specifications

• MH-8

No.	PB time	Video signal	Audio signal	Description
1	2 min.	Colour sweep	400 Hz (−10 dB)	for check and adjustment of frequency characteristic in video PB circuits for check and adjustment of frequency characteristic in audio PB circuits
2	2 min.	“	100 Hz (−10 dB)	
3	2 min.	“	8 kHz (−10 dB)	
4	4 min.	“	—	

• MH-F8

No.	PB time	Video signal	Audio signal	Description
1	5 min.	—	Carrier only	for check and adjustment of mechanism interchangeability
2	5 min.	Stairstep	Carrier only	
3	5 min.	—	1 kHz (±50 kHz dev.)	for check and adjustment of FM audio PB circuits

• MHPE

Video signal	Audio signal	Description
VHS SP mode Stairstep	6 kHz	for check and adjustment of interchangeability for check and adjustment of the servo circuit for adjustment of audio head azimuth
		Usable in place of MH-2 stairstep

• MHVE-2

Video signal	Audio signal	Description
VHS SP mode Colour bars	—	for check and adjustment of video signal PB circuits
		Usable in place of MH-2 colour bars

• MHAЕ

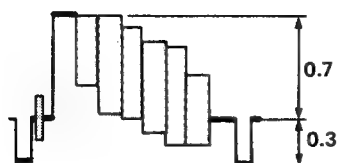
Video signal	Audio signal	Description
—	1 kHz (0 dB)	for check and adjustment of audio signal PB circuits
		Usable in place of MH-2 1 kHz signal

• MHVE-2H

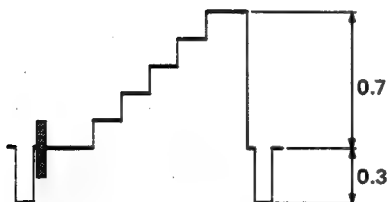
Video signal	Audio signal	Description
S-VHS SP mode Colour bars	—	for check and adjustment of video signal PB circuits
		Usable in place of MH-2H SP mode colour bars

3.2.2 Required video system test signals

1. EBU 75% colour bars



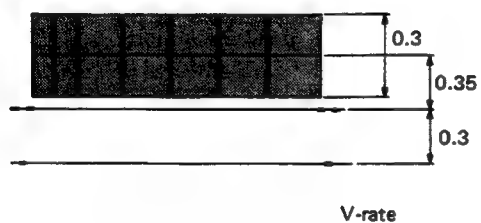
2. 5 steps



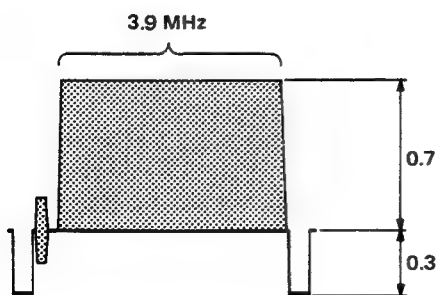
3. Modulated 5 steps



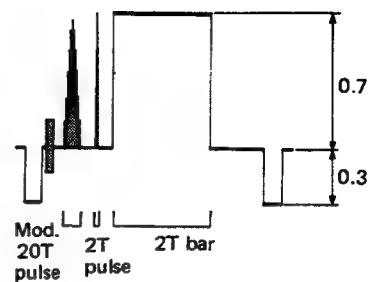
4. Video sweep (100 kHz – 5 MHz)



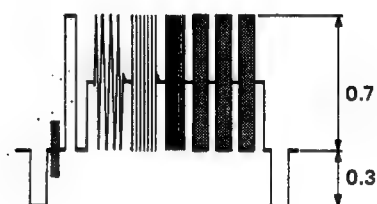
5. 3.9 MHz sine wave



6. Pulse & Bar



7. Multiburst (100%)



8. 100% white



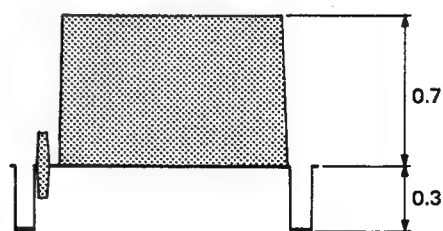
This can be used in place of a test pattern signal.

9. Sweep



10. 100% Chroma

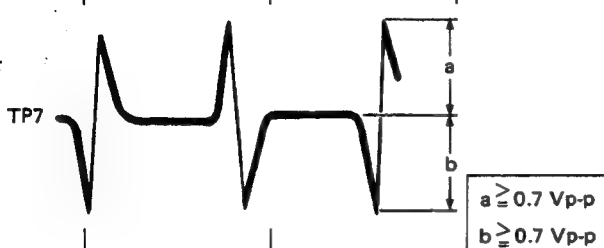
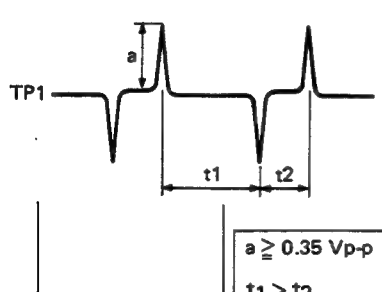
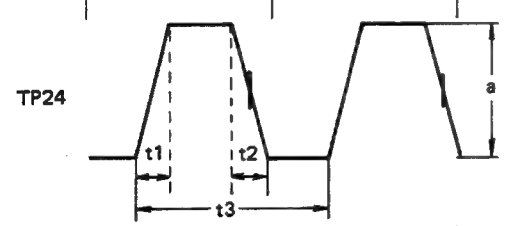
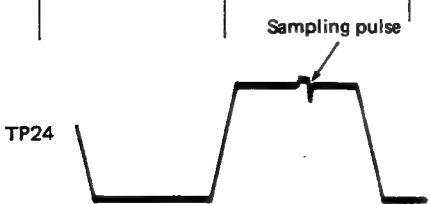
Another pure color may also be used. A large colour level allows easier adjustment.

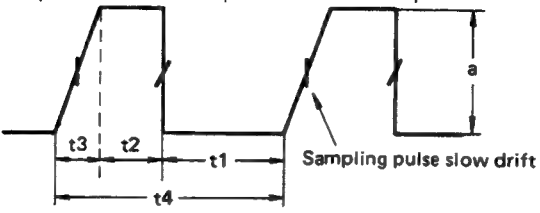
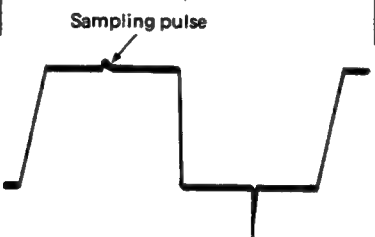
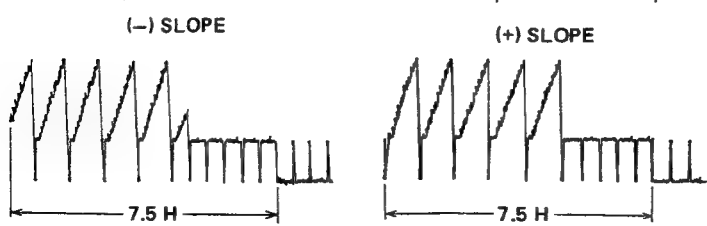


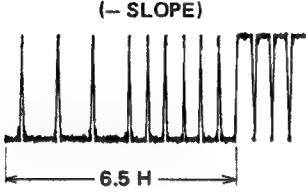
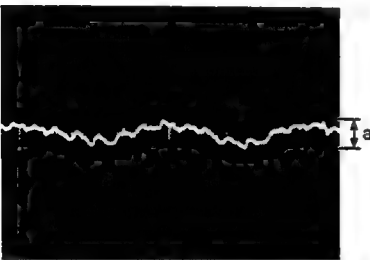
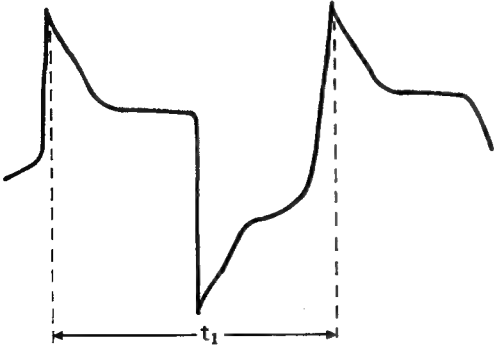
[UNIT: Vp-p]



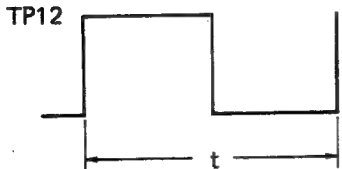
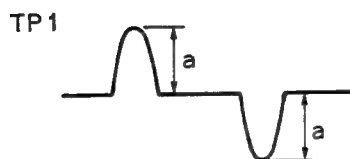

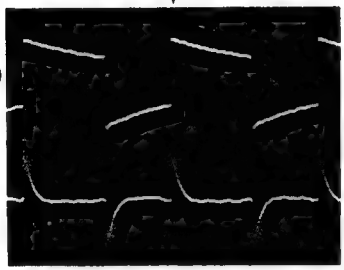

3.3 DRUM AND CAPSTAN SERVO (SERVO CIRCUIT)



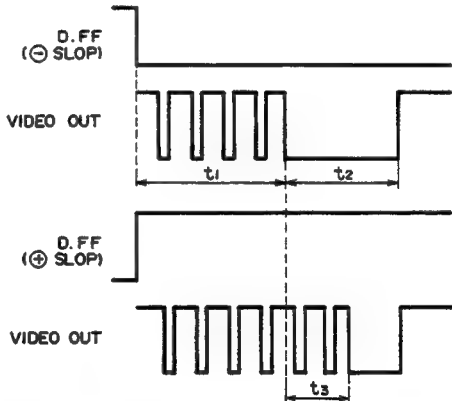
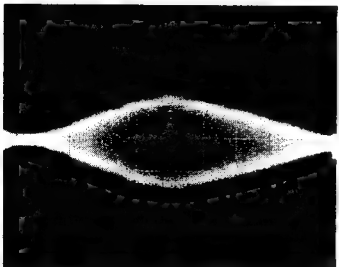
Note: Unless otherwise mentioned, check points and adjustment parts locations are on the Servo board.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	Drum pulse level	TP7	—	Color bars	REC	<ol style="list-style-type: none"> 1) Connect an oscilloscope to TP7. Trigger the oscilloscope externally with the signal from TP17 (D FF). 2) As indicated in the figure, confirm that a and b are greater than 0.7 Vp-p. <p>Note: Drum servo is synchronized.</p>
		 <p>TP7</p> <p>$a \geq 0.7 \text{ Vp-p}$ $b \geq 0.7 \text{ Vp-p}$</p>				
2	CTL pulse check	TP1	—	MHPE (Stairstep)	PB	<ol style="list-style-type: none"> 1) Connect the oscilloscope to TP1. Trigger the oscilloscope externally with the signal from TP17 (D FF). 2) Refer to the figure and confirm that positive pulse a is greater than 0.35 Vp-p. 3) Confirm that negative and positive going pulses conform to $t_1 > t_2$, as indicated in the figure. 4) Use spare tape to record and play back a TV test pattern. 5) As in above step 2, confirm that pulse a is greater than 0.35 Vp-p.
		 <p>TP1</p> <p>$a \geq 0.35 \text{ Vp-p}$ $t_1 > t_2$</p>		Monoscope or Color bars	REC ↓ PB	
3	Drum trapezoid	TP24	—	Color bars	REC	<ol style="list-style-type: none"> 1) Connect the oscilloscope to TP24. Trigger the oscilloscope externally with the signal from TP17 (D FF). 2) Confirm waveform proportions indicated in the figure. 3) Adjust the oscilloscope to set t_2 to 2 scale divisions. Confirm that t_1 is between 1.6 and 2.4 scale divisions.
		 <p>TP24</p> <p>$a = 5.0 \pm 0.4 \text{ Vp-p}$ $t_2 = 3.2 \pm 0.5 \text{ ms}$ $t_3 = 40.0 \text{ ms}$</p>				
4	Drum discriminator center	TP24	R27	Color bars	REC	<ol style="list-style-type: none"> 1) Short TP25 and TP GND. 2) Connect the oscilloscope to TP24. Trigger the oscilloscope externally with the signal from TP17 (D FF). 3) As indicated in the figure, confirm that sampling pulse drift with respect to the trapezoid period is greater than 5 seconds. 4) If necessary, adjust R27 to obtain greater than 5 seconds. 5) After adjusting, remove the short between TP25 and TP GND.
		 <p>TP24</p> <p>Sampling pulse</p>				

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
5	Capstan trapezoid	TP20	—	Color bars	REC	<ol style="list-style-type: none"> 1) Connect the oscilloscope to TP20. Trigger the oscilloscope externally with the signal from TP17 (D FF). 2) As indicated in the figure, confirm the following relationships. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> $a = 5.0 \pm 0.4 \text{ Vp-p}$ $t_3 = 4.0 \pm 0.5 \text{ ms}$ $t_4 = 40.0 \text{ ms}$ </div> 3) Adjust the oscilloscope to set t_2 to 3 scale divisions. Confirm that t_1 is between 2.4 and 3.6 scale divisions.
						
6	Capstan discriminator center	TP20	R49	Color bars	REC	<ol style="list-style-type: none"> 1) Connect a shorting wire between TP21 and TP GND. 2) Connect the oscilloscope to TP20. Trigger the oscilloscope externally with the signal from TP17 (D FF). 3) As indicated in the figure, confirm that sampling pulse drift with respect to the trapezoid period is slower than 5 seconds. 4) If necessary, adjust R49 to obtain greater than 5 seconds. 5) Remove the shorting wire from TP21 and TP GND.
						
7	H discriminator	VIDEO OUT (75-ohm termination) ↓ Monitor TV	R45	MHVE-2 (Color bars)	SEARCH	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> When connecting RM-G410U Remote Controller </div> <ol style="list-style-type: none"> 1) Connect VIDEO OUT to monitor-TV (terminate at 75Ω). 2) Set for Search mode x -1. 3) Observe monitor picture and adjust R45 for minimum color error.
8	PB switching point	VIDEO OUT	R105, R103	MHPE (Stairstep)	PB	<ol style="list-style-type: none"> 1) Connect the oscilloscope to VIDEO OUT. Trigger the oscilloscope externally with the signal from TP17 (D FF). Set the slope to (-). 2) Adjust R105 to set the trigger point $7.5 \pm 0.5 \text{ H}$ from V. sync. 3) Set the oscilloscope slope to (+) and adjust R103 to set the trigger point $7.5 \pm 0.5 \text{ H}$ from V. sync.
						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
9	REC switching point	TP15 	R147	Color bars	REC	<ol style="list-style-type: none"> 1) Connect the oscilloscope to TP15. Trigger the oscilloscope externally with the signal from TP17 (D FF). Set the slope to (-). 2) Adjust R147 to set the trigger point 6.5 ± 0.5 H from V. sync.
10	CTL amp noise level	TP1  $a \leq 70 \text{ mVp-p}$	—	Color bars	REC ↓ PB ↓ STILL	<ol style="list-style-type: none"> 1) Connect the oscilloscope to TP1. Trigger the oscilloscope externally with the signal from TP17 (D FF). 2) As shown in the figure, confirm noise level of less than 70 mVp-p. <p>Note: Ground oscilloscope to TP GND.</p>
11	Tape speed	TP12 ↓ Frequency counter	—	Color bars	REC	<ol style="list-style-type: none"> 1) Connect a frequency counter to TP12 and confirm 504 ± 1.5 Hz.
12	Search speed	TP1 VIDEO OUT (75-ohm termination) ↓ Monitor TV 	—	MHVE-2 (Color bars)	SEARCH	<ol style="list-style-type: none"> 1) Trigger oscilloscope externally with the signal from TP17 (D FF). 2) Connect VIDEO OUT to monitor-TV (terminate at 75Ω). 3) Connect oscilloscope to TP1 and confirm width of time t_1 (see figure). 4) In the Search FWD mode X9, confirm the following relationship. $t_1 = 4.3 \pm 0.2 \text{ ms}$ 5) In the Search REV mode X-9, confirm the following relationship. $t_1 = 4.7 \pm 0.2 \text{ ms}$ 6) Also confirm that noise bar does not drift in the Search mode.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
13	Slow mode tape speed	TP12 TP1 VIDEO OUT (75-ohm termination)  Monitor TV	—	Color bars	REC  PB	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> When connecting RM-G410U Remote Controller </div> 1) Connect the oscilloscope to TP12. 2) Set for the Slow Search mode X1/2 and confirm the following relationship. $t = 3.65 \text{ to } 3.95 \text{ ms}$ 3) In the Slow Search mode X-1/2, confirm the following relationship. $t = 3.65 \text{ to } 3.95 \text{ ms}$ 4) Connect the oscilloscope to TP1 and confirm the following for both X1/2 and X-1/2. $a \geq 0.2 \text{ V}$
		 				
14	Tracking preset	TP1   Observed by storage oscilloscope	R138	Color bars	REC  PB	1) Connect the oscilloscope to TP1. Trigger the oscilloscope externally with the signal from TP17 (D FF). 2) Set the Tracking control to the center detent position. 3) Use a spare tape and record a color bars. Refer to the figure and adjust R138 so that recording CTL pulse (A) is aligned with playback waveform (B). 4) Again check the PB switching point adjustment (above item 8) and if necessary, repeat the adjustments of items 8, 9 and 14. Note: Since recording and playback waveforms cannot be seen simultaneously, set the waveform rising edge (C) to the center grid for easier interprinting.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
15	V. pulse position	VIDEO OUT (75-ohm termination)	R113, R114	Color bars	REC ↓ PB ↓ STILL	<p>Note: This adjusts the synthesized vertical pulse width and position.</p> <ol style="list-style-type: none"> 1) Connect the oscilloscope to VIDEO OUT. Trigger the oscilloscope externally with the signal from TP17 (D FF). Set the slope to (-). 2) Align the falling edge of the V. pulse with the oscilloscope center grid. Refer to the ratings shown in the figure. 3) Adjust t2 with R113. 4) Set the oscilloscope to (+) slope and adjust t3 with R114.
		<p>(-) SLOPE</p>  <p>t1 = $300 \pm 50 \mu\text{sec}$ t2 = $250 \pm 50 \mu\text{sec}$ t3 = $100 \pm 20 \mu\text{sec}$</p> <p>(+) SLOPE</p> 			SEARCH	<p>When connecting RM-G410U Remote Controller</p> <ol style="list-style-type: none"> 1) When V pulse is applied during both forward and reverse directions of the Search mode x9 and Slow Search mode x½, confirm the following relationship. t3 = $0 \pm 20 \mu\text{s}$ 
16	x-1 Play tracking preset	TP4 (V. PRE PWB)	R127	Color bars	SEAR-CH (X-1)	<p>When connecting RM-G410U Remote Controller</p> <ol style="list-style-type: none"> 1) Set the Tracking control to the center detent position. 2) Connect the oscilloscope to TP4 of the V. PRE board. Trigger the oscilloscope externally with the signal from TP17 (D FF). Set the slope to (-). 3) Adjust R127 to set the FM waveform level to maximum at the oscilloscope center grid. 

3.4 AUDIO CIRCUIT

Notes:

- 1) Unless otherwise mentioned, all check points and adjustment parts are located on the AUDIO board.
- 2) Unless otherwise mentioned, set switches as indicated below.

Switches of the Mainframe

— Rear Cover —

Hi-Fi REC SW : ON
 AUDIO LIMITER SW : OFF
 DOLBY NR SW : OFF
 AUDIO OUT SW : NORM
 AUDIO MONITOR SW : MIX
 METER SELECT SW : AUD-2 (R)
 REC MODE SW : VHS

— Top Cover —

INPUT SELECT SW : LINE
 INPUT LEVEL SW : -20
 AUDIO OUTPUT SW : -6


Switches of the Adapter

INPUT SELECT SW : LINE

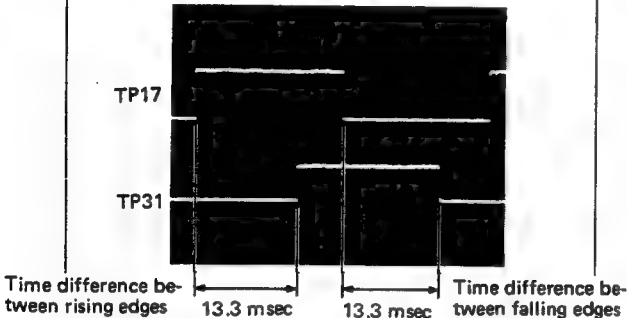
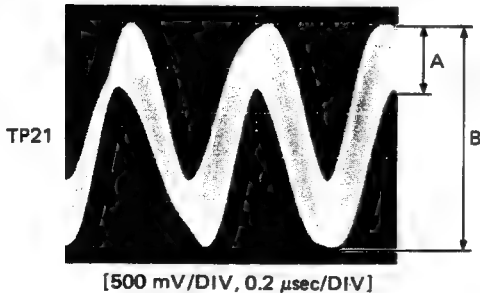
- 3) Where a step calls for change from initial setting, return to the initial setting after completing the adjustment.
- 4) Use 180-minute tape, unless otherwise mentioned.
- 5) 0 dBs = 0.775 Vrms = 2.19 Vp-p.

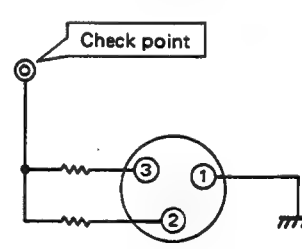
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description						
1	Audio level (Margin & VR setting)	AUDIO OUT ↓ Audio Level Meter	REC LEVEL VR	1 kHz/−6 dBs (AUDIO IN)	E-E	1) From initial setting, set the AUDIO OUT switch to Hi-Fi. 2) Turn the Hi-Fi REC LEVEL control fully clockwise. Confirm AUDIO OUT levels of +8.0 ± 1.5 dBs for both channels. 3) After checking, set the Hi-Fi REC LEVEL control for −6.0 dBs at AUDIO OUT. 4) Return to initial settings. AUDIO OUT switch: NORM. 5) Turn the NORMAL REC LEVEL controls fully clockwise. Confirm +8.0 ± 1.5 dBs for both channels. 6) After checking, set the NORMAL REC LEVEL controls for −6 dBs. Note: Leave NORMAL REC LEVEL controls at this setting for the following steps.						
2	Audio level meter	AUDIO OUT ↓ Audio Level Meter	R198 (L ch) R200 (R ch)	1 kHz/−6 dBs (AUDIO IN)	E-E	1) Confirm −6 dBs at AUDIO OUT. 2) Look directly at the AUDIO LEVEL meters. Adjust R198 and R200 for 0 VU.						
3	N. audio PB frequency response	AUDIO OUT ↓ Audio Level Meter <table><tr><td>400 Hz</td><td>100 Hz</td><td>8 kHz</td></tr><tr><td>0 dB (reference)</td><td>0 ± 2.0 dB</td><td>0 dB</td></tr></table>	400 Hz	100 Hz	8 kHz	0 dB (reference)	0 ± 2.0 dB	0 dB	R46 (L ch) R87 (R ch)	MH-8 400 Hz 100 Hz 8 kHz	PB	1) Play 400 Hz signal of MH-8 alignment tape. Measure this level at AUDIO OUT as reference (0 dB). 2) Play 100 Hz signal of MH-8 alignment tape and confirm output level of 0 ± 2.0 dB. 3) Play 8 kHz signal of the MH-8 alignment tape. Adjust R46 and R87 for 0 dB output level.
400 Hz	100 Hz	8 kHz										
0 dB (reference)	0 ± 2.0 dB	0 dB										
4	N. audio PB level	AUDIO OUT ↓ Audio Level Meter	R48 (L ch) R89 (R ch)	MHAE (1 kHz)	PB	1) Play 1 kHz signal of MHAE alignment tape and adjust R48 and R89 for −8 dBs output level.						
5	Full erase voltage Bias frequency	TP17 TP15	—	No signal input	REC	1) Connect the oscilloscope to TP17. 2) Confirm erase voltage of DC 12 ± 1 V. 3) Connect the oscilloscope or frequency counter to TP15. 4) Confirm frequency of 68 ± 5 kHz (13.7 to 15.9 μs).						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
6	Bias level	TP5 (L ch) TP6 (L ch) TP7 (R ch) TP8 (R ch) ↓ Audio Level Meter	R104 (L ch) R105 (R ch)	No signal input	REC	1) Use S-VHS tape (180 minutes). 2) Use initial setting. REC MODE switch: S-VHS 3) Connect (+) side of an audio tester to TP5 (TP7) and (−) side to TP6 (TP8). 4) Adjust R104 and R105 for 4.5 Vrms bias level for both L and R channels.
		TP5 (L ch) TP6 (L ch) TP7 (R ch) TP8 (R ch) ↓ Audio Level Meter	R323 (L ch) R324 (R ch)	No signal input	REC	5) Use VHS tape and set REC MODE switch to VHS. 6) Connect (+) side of an audio tester to TP5 (TP7) and (−) side to TP6 (TP8). 7) Adjust R323 and R324 for 3.2 Vrms bias level for both L and R channels.
7	N. audio REC/PB level	AUDIO OUT ↓ Audio Level Meter	—	1 kHz/−6 dBs (AUDIO IN)	REC ↓ PB	• VHS mode 1) Record and play back a 1 kHz/−6 dBs signal. 2) Confirm playback levels of -6.0 ± 0.5 dBs for both L and R channels (channel difference within 0.5 dB). If necessary, Adjust R51 and R92. 3) If level difference occurs, measure TP9 (TP10) and correct for the level difference. Example: If one of the measured values is 2 dB too low, increase the level by 2 dB. 4) Again, check according to above steps 1) and 2).
		TP9 (L ch) TP10 (R ch)	R51 (L ch) R92 (R ch)	1 kHz/−6 dBs (AUDIO IN)	REC	• S-VHS mode 5) Use S-VHS (180-minute) tape. 6) Set REC MODE switch to S-VHS. 7) Record and play back a 1 kHz/−6 dBs signal. 8) During playback, confirm -6 ± 2.0 dBs for both L and R channels.
		AUDIO OUT ↓ Audio level meter	—	1 kHz/−6 dBs (AUDIO IN)	REC ↓ PB	

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description										
8	N. audio REC/PB frequency response	AUDIO OUT ↓ Audio Level Meter	(R104) (R105)	40 Hz/ -26 dBs 100 Hz/ -26 dBs 1 kHz/ -26 dBs 12 kHz/ -26 dBs (AUDIO IN)	REC ↓ PB	1) Use S-VHS (180-minute) tape. 2) Set the REC MODE switch to S-VHS. 3) In succession, record 40 Hz, 100 Hz, 1 kHz and 12 kHz signals. 4) With the 1 kHz playback level taken as 0 dB, confirm that the other signals conform to the Table. Also confirm that the 12 kHz channel level difference is within 3 dB. 5) If out of specification, perform one of the following adjustments. a) If the 12 kHz playback level is higher than specified, raise the bias level (see item 6). (Max. 5.0 mVrms) b) If the 12 kHz playback level is lower than specified, reduce the bias level (see item 6). (Min. 3.0 mVrms) 6) Repeat the above steps until specifications are fulfilled.										
		<table><tr><th>REC mode</th><th>40 Hz</th><th>100 Hz</th><th>1 kHz</th><th>12 kHz</th></tr><tr><td>S-VHS</td><td>-2.0 ± 3.0 dB</td><td>0 ± 2.5 dB</td><td>0 dB (reference)</td><td>0^{+1.5}_{-2.5} dB</td></tr></table>					REC mode	40 Hz	100 Hz	1 kHz	12 kHz	S-VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB
		REC mode	40 Hz	100 Hz	1 kHz	12 kHz										
		S-VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB										
<table><tr><th>REC mode</th><th>40 Hz</th><th>100 Hz</th><th>1 kHz</th><th>12 kHz</th></tr><tr><td>VHS</td><td>-2.0 ± 3.0 dB</td><td>0 ± 2.5 dB</td><td>0 dB (reference)</td><td>0^{+1.5}_{-2.5} dB</td></tr></table>					REC mode	40 Hz	100 Hz	1 kHz	12 kHz	VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB		
REC mode	40 Hz	100 Hz	1 kHz	12 kHz												
VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB												
		AUDIO OUT ↓ Audio Level Meter	(R323) (R324)	40 Hz/ -26 dBs 100 Hz/ -26 dBs 1 kHz/ -26 dBs 12 kHz/ -26 dBs (AUDIO IN)	REC ↓ PB	7) Use VHS (180-minute) tape. 8) Set DOLBY NR switch to ON and REC MODE switch to VHS. 9) In succession, record 40 Hz, 100 Hz, 1 kHz and 12 kHz signals. 10) With the 1 kHz playback level taken as 0 dB, confirm that the other signals conform to the Table. Also confirm that the 12 kHz channel level difference is within 3 dB. 11) If out of specification, perform one of the following adjustments. a) If the 12 kHz playback level is higher than specified, raise the bias level (see item 6). (Max. 4.2 mVrms) b) If the 12 kHz playback level is lower than specified, reduce the bias level (see item 6). (Min. 2.2 mVrms) 12) Repeat the above steps until specifications are fulfilled.										
		<table><tr><th>REC mode</th><th>40 Hz</th><th>100 Hz</th><th>1 kHz</th><th>12 kHz</th></tr><tr><td>VHS</td><td>-2.0 ± 3.0 dB</td><td>0 ± 2.5 dB</td><td>0 dB (reference)</td><td>0^{+1.5}_{-2.5} dB</td></tr></table>					REC mode	40 Hz	100 Hz	1 kHz	12 kHz	VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB
		REC mode	40 Hz	100 Hz	1 kHz	12 kHz										
		VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB										
<table><tr><th>REC mode</th><th>40 Hz</th><th>100 Hz</th><th>1 kHz</th><th>12 kHz</th></tr><tr><td>VHS</td><td>-2.0 ± 3.0 dB</td><td>0 ± 2.5 dB</td><td>0 dB (reference)</td><td>0^{+1.5}_{-2.5} dB</td></tr></table>					REC mode	40 Hz	100 Hz	1 kHz	12 kHz	VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB		
REC mode	40 Hz	100 Hz	1 kHz	12 kHz												
VHS	-2.0 ± 3.0 dB	0 ± 2.5 dB	0 dB (reference)	0 ^{+1.5} _{-2.5} dB												
9	Alarm level	EARPHONE jack or TP26	R190	No signal input	FF ↓ TAPE END	1) Connect the oscilloscope to the EARPHONE jack and run the tape in FF to the end of tape. 2) As indicated in the figure, adjust R190 for an output waveform of 200 mVp-p.										
																

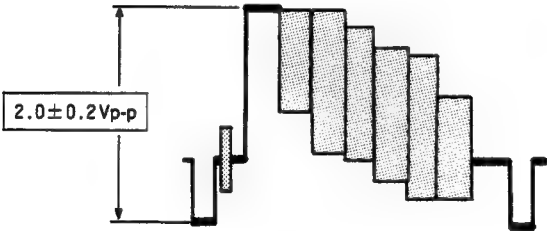
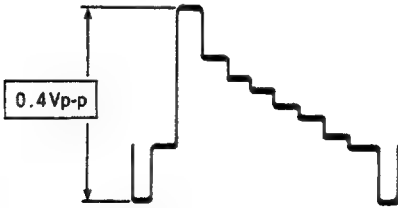


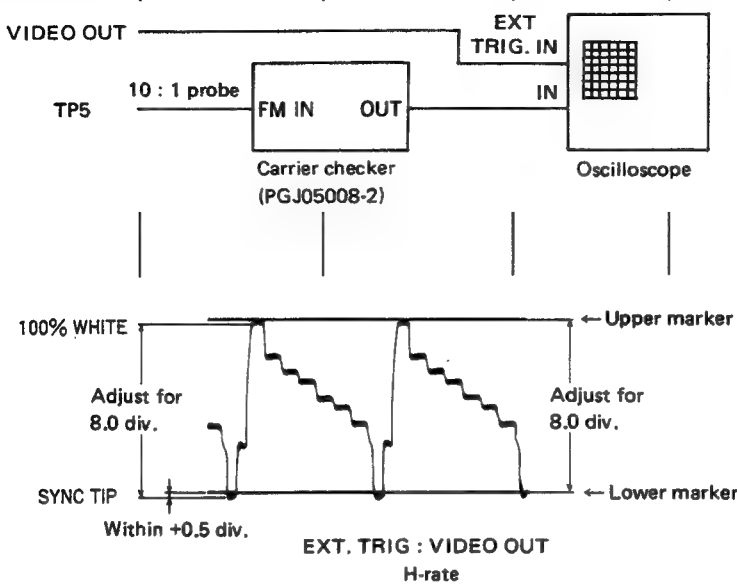
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description												
10	Crosstalk cancel	AUDIO CH-1 OUT ↓ Audio Level Meter	R40	3 kHz/−6 dBs (AUDIO CH-2 IN)	AUDIO DUB	1) Leave AUDIO CH-1 line input open. 2) Connect a 3 kHz/−6 dBs signal to AUDIO CH-2 line input. 3) Use a tape without a prior audio signal and perform audio dubbing. Adjust R40 for minimum CH-1 output.												
11	FM audio switching point	TP31 (AUDIO) TP17 (SERVO) 	R241 R243	—	PB	1) Connect CH-1 of a dual-trace oscilloscope to TP17 (SERVO) and CH-2 to TP31 (AUDIO). Trigger the oscilloscope with the signal from TP17 (D. FF). 2) Adjust R241 to set the time difference between the rising edges of the waveforms to 13.3 ms, as indicated in the figure. 3) Adjust R243 to set the time difference between the falling edges of the waveforms to 13.3 ms, as indicated in the figure.												
12	FM audio PB level	AUDIO OUT ↓ Audio Level Meter	R160 (L ch) R154 (R ch)	MH-F8 1 kHz	PB	1) At initial setting, set the AUDIO OUT switch to Hi-Fi. 2) Adjust R160 and R154 for −6 dBs Hi-Fi OUT levels on L and R channels.												
13	FM audio REC FM level	TP21  [500 mV/DIV, 0.2 μsec/DIV]	R161 R163	No signal	REC	1) At initial setting, set the Hi-Fi REC switch to ON. 2) Connect the oscilloscope to TP21. 3) Turn R161 fully counterclockwise, as viewed from the parts side of the board. 4) Temporarily adjust R163 to set level B (see figure) to the area of 1.9 Vp-p. 5) Adjust R161 to set level A to 0.6 V. 6) Fine-adjust R161 and R163 to where levels A and B conform to the specifications indicated in the table. ----- 7) Use S-VHS (180-minute) tape. 8) At initial setting, set the Hi-Fi REC switch to ON and the REC MODE switch to S-VHS. 9) Confirm that levels A and B conform to the specifications indicated in the table.												
<table><tr><th>REC mode</th><th>Check point</th><th>A (specified)</th><th>B (specified)</th></tr><tr><td>VHS</td><td>TP21</td><td>0.6 Vp-p</td><td>2.5 Vp-p</td></tr><tr><td>S-VHS</td><td>TP21</td><td>0.50 ± 0.05 V</td><td>2.0 ± 0.2 Vp-p</td></tr></table>							REC mode	Check point	A (specified)	B (specified)	VHS	TP21	0.6 Vp-p	2.5 Vp-p	S-VHS	TP21	0.50 ± 0.05 V	2.0 ± 0.2 Vp-p
REC mode	Check point	A (specified)	B (specified)															
VHS	TP21	0.6 Vp-p	2.5 Vp-p															
S-VHS	TP21	0.50 ± 0.05 V	2.0 ± 0.2 Vp-p															

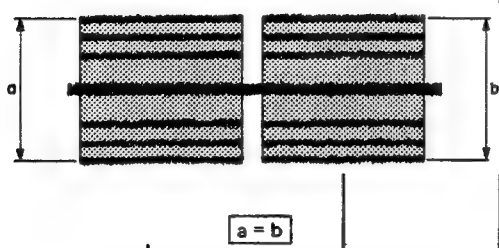
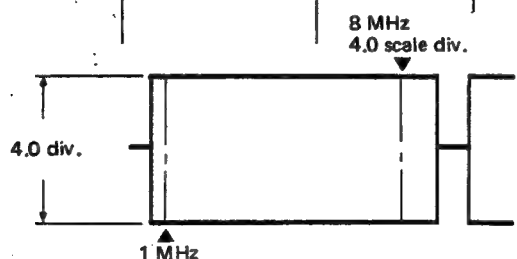
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
14	FM audio REC/PB level	AUDIO OUT (600-ohm termination) ↓ Audio level meter	R159 (L ch) R153 (R ch)	1 kHz/−6 dBs	REC ↓ PB	<p>1) At the initial setting, set the Hi-Fi REC switch to ON and the AUDIO OUT switch to Hi-Fi.</p> <p>2) Record and play back a 1 kHz/−6 dBs signal.</p> <p>3) Confirm Hi-Fi OUT levels of -6 ± 0.5 dBs for both L and R channels (channel difference within 0.5 dB). If out of specification, perform checks of item 12.</p> <p>4) Adjust L channel with R159 and R channel with R153.</p> <p>5) Again record and play back. Repeat this adjustment until specification is met.</p> <p>-----</p> <p>6) Use S-VHS tape.</p> <p>7) At the initial setting, set the Hi-Fi REC switch to ON and the AUDIO OUT switch to Hi-Fi. Set the REC MODE switch to S-VHS.</p> <p>8) Record and play back a 1 kHz/−6 dBs signal.</p> <p>9) Confirm Hi-Fi OUT levels of -6 ± 1.0 dBs for both L and R channels (channel difference within 1.0 dBs).</p>
15	Audio output BALANCE	AUDIO OUT (XLR PWB) ↓ Audio Level Meter	R76 (L ch) R88 (R ch) (XLR PWB)	1 kHz/−2 dBs ↓ AUDIO INPUT (XLR)	E-E	<p>1) From initial setting, set the AUDIO INPUT SELECT switch to CAM.</p> <p>2) Adjust R76 and R88 so that AUDIO OUT level become minimum.</p> <div style="text-align: center;">  <p>300 Ω ($\pm 0.1\%$) $\times 2$</p> </div>

3.5 VIDEO CIRCUIT

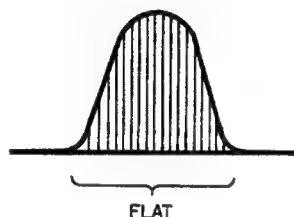
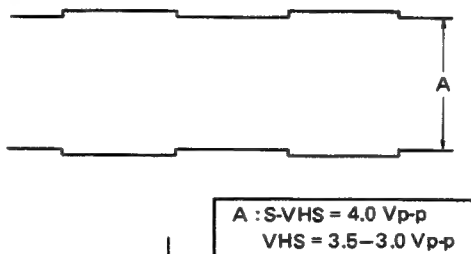
- Notes:** 1) Before adjusting, set power ON and allow at least 5 minutes warm-up.
 2) Unless otherwise mentioned, check points and adjustments are on the VIDEO board.
 3) When S-VHS is specified, use 180-minute S-VHS tape and set the rear panel REC MODE switch to S-VHS.
 4) When VHS is specified, use 180-minute VHS tape and set the rear panel REC MODE switch to VHS.

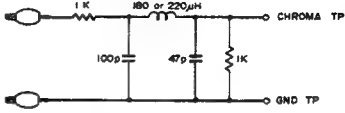
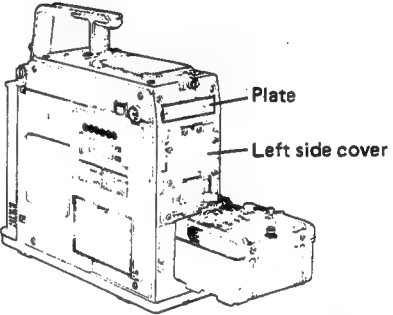
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	E-E video out level	VIDEO OUT (75-ohm termination)	R167 R129	Color bars	E-E	1) Connect the oscilloscope to VIDEO OUT. 2) Adjust R167 to set the Y level to 1.0 Vp-p. 3) Set the oscilloscope to DC mode and adjust R129 to set the burst level to 0.300 Vp-p.
		<div>Y level : 1.00 ± 0.05 Vp-p</div> <div>Burst level : 0.300 ± 0.05 Vp-p</div>				
2	E-E Y output level	Y OUT (75-ohm termination)	—	Color bars	E-E	1) Connect the oscilloscope to Y OUT. 2) Confirm output level of 1.0 ± 0.5 Vp-p.
		<div>Y level : 1.00 ± 0.5 Vp-p</div>				
3	E-E return Y level	TP23	R213	Color bars	E-E	1) Connect the oscilloscope to TP23. 2) Adjust R213 for 1.0 Vp-p output level.
		<div>Y level : 1.00 ± 0.05 Vp-p</div>				
4	RF video level	TP30	—	Color bars	E-E	1) Connect the oscilloscope to TP30. 2) Confirm level of 2.0 ± 0.2 Vp-p.
						
5	REC process input level	TP7	R35	Color bars	E-E	1) Adjust R35 for 0.4 Vp-p input level at TP7.
						
6	Limiter balance	TP26 ↓ Digital voltmeter	R43	No signal	E-E	1) Connect a digital voltmeter to TP26. 2) Adjust R43 for 3.48 ± 0.05 VDC.
		<div>TP26 : 3.48 ± 0.05 VDC</div>				

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
7	Carrier and deviation	TP5 : S-VHS	R52	Color bars	E-E	<p>Note: Carrier checker (PGJ05008-2) is needed for this adjustment.</p> <p>1) Connect the carrier checker and oscilloscope as indicated in the figure.</p> <p>• S-VHS mode</p> <p>2) Connect the carrier checker to TP5 and set the checker switch to S-VHS.</p> <p>3) Adjust to set 8 scale divisions on the oscilloscope between the upper and lower markers.</p> <p>4) Confirm that the sync tip is within ± 0.5 scale division of the lower marker.</p> <p>Adjust R52 so that level difference between 100% white and sync tip is 8.0 scale divisions at that time. (Deviation : 1.6 MHz)</p>
						
		TP1 : VHS	—	Color bars	E-E	<p>• VHS mode</p> <p>6) Connect the carrier checker to TP1 and set the checker switch to NORMAL VHS.</p> <p>7) Adjust for 5 scale divisions between the upper and lower markers.</p> <p>8) Confirm that the sync tip is within ± 0.5 scale division of the lower marker.</p> <p>9) Confirm that 100% white is within ± 0.5 scale division of the upper marker.</p>
		TP2	—	MHVE-2H	PB	<p>• When a carrier checker is unavailable, perform adjustment in the following manner.</p> <p>1) Connect the oscilloscope to TP2.</p> <p>2) Play back MHVE-2H alignment tape in the SP mode.</p> <p>3) By turning the oscilloscope's VARIABLE knob, adjust the Y level of TP2's waveform to be 6 scale divisions.</p>
			R52	Color bars	REC ↓ PB	<p>4) Record the color bar signal and play it back (S-VHS mode).</p> <p>5) Confirm that the level of TP2's waveform is 6 scale divisions.</p> <p>6) If not, turn R52 to adjust the level.</p> <p>7) Repeat the above steps 4) through 6) until the level of TP2's waveform becomes 6 scale divisions.</p>

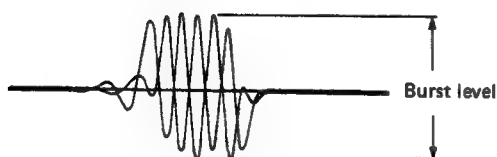
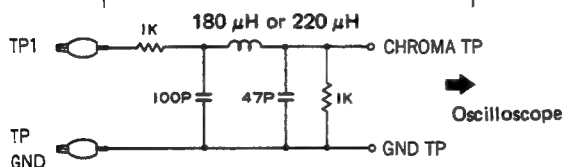
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
8	PB color channel difference temporary adjustment	TP9 (COLOR PWB)	R15 (V. PRE PWB)	MHVE-2H	PB	<div><div><div>1) Play color bar signal of MHVE-2H alignment tape.</div><div>2) Connect external trigger of oscilloscope to TP35.</div><div>3) Adjust R15 to equalize the chroma levels of CH1 and CH2.</div><div>4) R15 is adjusted again in the item 14.</div></div><div></div></div>
9	Head resonance	<div><div>● Preparation and Precaution</div><div><div>(1) Disconnect two cables from CN3 of the SYSCON board and CN10 of the SERVO board temporarily, and connect them to CN2 and CN4 of the mode setting device (PGJ05031) respectively. Next, connect wires of CN1 and CN3 of the mode setting device to CN3 of the SYSCON board and CN10 of the SERVO board.</div><div>(2) Use such a sweep signal as its sweep width is between 8.5 MHz and 1 MHz or less without sync, but its 1 MHz and 8 MHz signals must have markers.</div></div></div>				
		TP25	R21 C24 (V. PRE PWB)	Sweep signal	STOP	<div><div>● CH-1 head</div><div><div>1) Set the mode setting device's switch to "CH-1".</div><div>2) Terminate the output of the sweep generator with a coil of 1 mH or so, and set the coil near the video head.</div><div>3) Rotate the upper drum by hand and stop it when the level of TP25's waveform is maximum. (External synchronization of the oscilloscope can be realized by using the sweep generator's trigger output.)</div><div>4) Adjust the level of the 1 MHz signal so that it becomes 4 scale divisions on the oscilloscope screen.</div><div>5) Adjust R21 and C24 alternately so that the level of the 8 MHz signal is 4.0 scale divisions and the waveform is flat.</div></div></div>
			R20 C22 (V. PRE PWB)	Sweep signal	STOP	<div><div>● CH-2 head</div><div><div>6) Set the mode setting device's switch to "CH-2".</div><div>7) In the same manner as for CH-1 head, alternately adjust R20 and C22 so that the level of 8 MHz signal is 4.0 scale divisions.</div></div></div>
<div></div>						

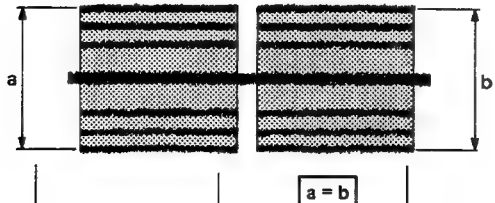
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
10	REC FM level (FMA REC/PB, RF Level check)	TP24 TP20 (AUDIO PWB)	R87 : S-VHS R79 : VHS	Color bars (VIDEO IN) NO signal (AUDIO IN)	REC REC ↓ PB	<p>1) Trigger the oscilloscope externally with the signal from TP35.</p> <p>• S-VHS mode</p> <p>2) Adjust R87 to set the TP24 pedestal to 4.0 Vp-p.</p> <p>• VHS mode Hi-Fi REC SW : ON</p> <p>3) Tuner R79 to set the pedestal level at TP24 to 3.5 Vp-p.</p> <p>4) Confirm more than 110 mVp-p, level at AUDIO PWB TP20.</p> <p>5) If less than 110 mVp-p, slightly reduce the TP24 level with R79. Again measure Audio PWB TP20.</p> <p>6) However, do not set the TP24 level for less than 3.0 Vp-p.</p>
11	REC Y/C delay	TP7 TP9	R97	Pulse/Bar signal (20T)	REC	<p>• S-VHS mode</p> <p>1) Set dual-trace oscilloscope to ADD mode and connect to TP7 and TP9.</p> <p>2) Adjust R97 to set the 20T pulse lower perimeter as flat and symmetrical as possible.</p>
		TP2 TP29	R108	Pulse/Bar signal (20T)	REC	<p>• VHS mode</p> <p>3) Set dual-trace oscilloscope to ADD mode and connect to TP2 and TP29.</p> <p>4) In the same manner as step 2, adjust R108.</p>



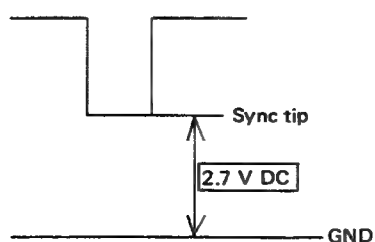
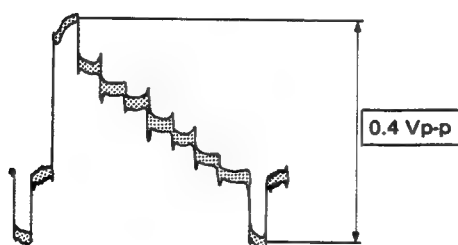
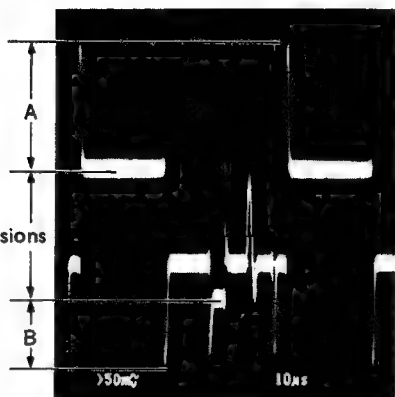
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
12	S-VHS Side-band	TP1 (AD REC PWB)	R8 (AD REC PWB)	3.9 MHz sinwave	REC	<p>Note: If you can make such a filtering device as shown below, this adjustment can easily be performed only by removing the plate on the left side cover.</p>   <ol style="list-style-type: none"> 1) Connect the filtering device and the oscilloscope as shown on the left. <p>Note: When such the filtering device is unavailable, connect the oscilloscope to pin 7 of IC1 of the AD REC board.</p> <ol style="list-style-type: none"> 2) Set the REC MODE switch to "VHS" mode. 3) Record the sinwave (3.9 MHz) 4) Adjust the burst level of the above signal to be 5.0 scale divisions on the oscilloscope screen. 5) Next, change the set position of the REC MODE switch to "S-VHS" mode, and record the same signal. 6) Adjust R8 so that the burst level of the above step becomes 4 scale division. <p>Note:</p> <ol style="list-style-type: none"> 1) When adjusting R8, turn it fully clockwise as viewed from the pattern side beforehand. Then, gradually turn it counterclockwise, and set it when the measured value meets the specification for the first time. (There are two points where it meets the specification.)

Connection of filtering device

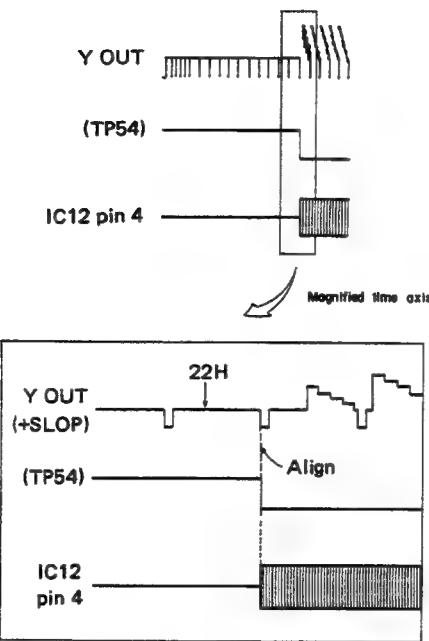
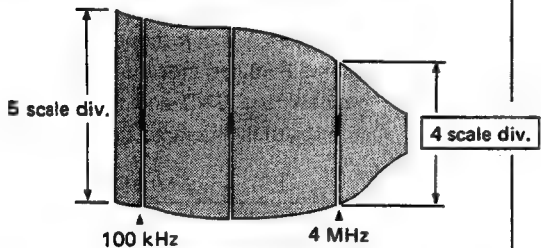
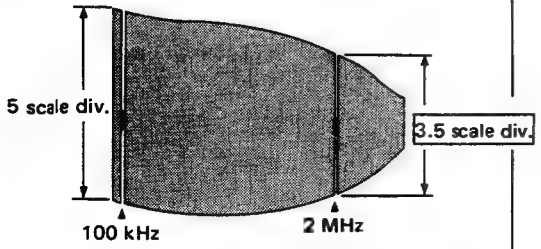


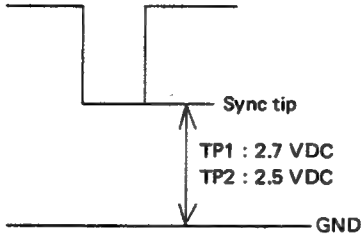

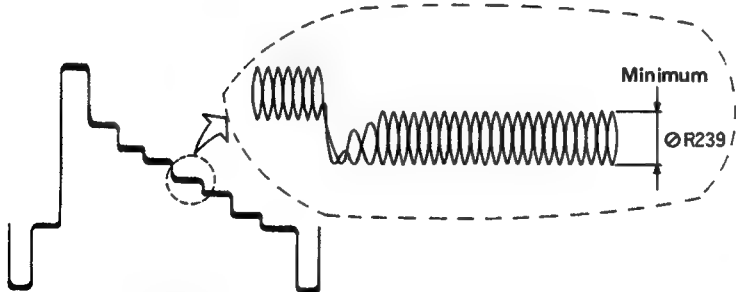
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
13	REC/PB color level	TP9 (COLOR PWB)	R46 (VIDEO-2 PWB)	MHVE-2H	PB	<ul style="list-style-type: none">• S-VHS mode1) Trigger the oscilloscope externally with the signal from TP35. Set slope to (—).2) Adjust the Tracking control for the optimum point.3) In SP mode, play the color bar signal of the MHVE-2H alignment tape.4) Set the TP9 playback level to 4.0 scale divisions on the oscilloscope.
				Color bars	REC ↓ PB	<ul style="list-style-type: none">5) Use a spare tape, record and playback a color bar signal.6) Set the Tracking control to the center detent position. Record and play back and adjust R46. Repeat this process until TP9 level is 5 scale divisions. <p>Notes:</p> <ul style="list-style-type: none">• Confirm maximum FM waveform at the detent position of the Tracking control. If not maximum, perform control head phase adjustment (section 2.6.6).• If there is channel difference, adjust at the larger level.• Confirm that smaller level is greater than 4.5 scale divisions (channel difference within 1 dB).
			R47 (VIDEO-2 PWB)	MHVE-2	PB	<ul style="list-style-type: none">• VHS mode7) Play color bar signal of the MHVE-2 alignment tape. Set the Tracking control to the optimum point.8) Set the TP9 playback level to 5 scale divisions on the oscilloscope.9) Use spare tape, record and play back a color bar signal.10) Set Tracking control to the center detent position. Adjust R47, record and play back. Repeat until the TP9 level is 4.5 scale divisions. <p>Note: If channel difference, adjust for the larger level.</p>
				Color bars	REC ↓ PB	
14	REC/PB color channel difference	TP5 (COLOR PWB)	R15 (V. PRE PWB)	Color bars	REC ↓ PB	<ul style="list-style-type: none">• S-VHS mode1) Trigger the oscilloscope externally with the signal from TP35.2) Set Tracking control to the center detent position.3) Adjust R15 to equalize CH1 and CH2 levels.4) This completes adjustment of R15.
<div></div>						

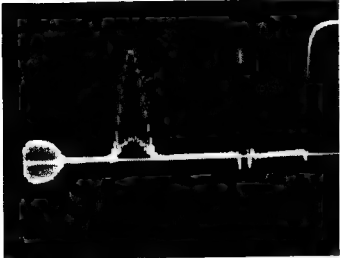
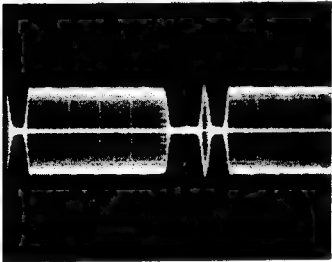
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
15	White and dark clip	TP52	—	Pulse/Bar signal (20T)	E-E	<p>• VHS mode</p> <p>1) Connect the oscilloscope to TP52. Adjust the oscilloscope to set 4.0 scale divisions between the sync tip and 100% white.</p> <p>2) Confirm that levels A and B (see figure) are as follows.</p> <p>A (white clip) : 3.5 to 3.9 scale divisions ($192 \pm 5\%$)</p> <p>B (dark clip) : 1.6 to 2.0 scale divisions ($45 \pm 5\%$)</p>
		TP53	—	Pulse/Bar signal (20T)	E-E	<p>• S-VHS mode</p> <p>3) Connect the oscilloscope to TP53. Adjust in the same manner as step 1.</p> <p>4) Confirm that levels A and B are as follows.</p> <p>A (white clip) : 4.0 to 4.8 scale divisions ($210 \pm 10\%$)</p> <p>B (dark clip) : 2.4 to 3.2 scale divisions ($70 \pm 10\%$)</p>
16	PB process input level	TP7	R20	Color bars	REC ↓ PB	<p>• S-VHS mode</p> <p>1) Record and play back a color bar signal.</p> <p>2) Adjust R20 to set TP7 level to 0.4 Vp-p.</p>
17	CCD bias	TP28	R189	Color bars	REC ↓ PB	<p>• S-VHS mode</p> <p>1) Record and play back a color bar signal.</p> <p>2) Adjust R189 to set DC level of the sync tip to 2.7 V DC.</p>

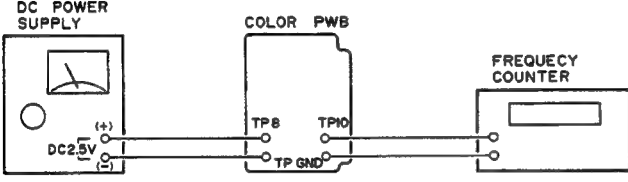
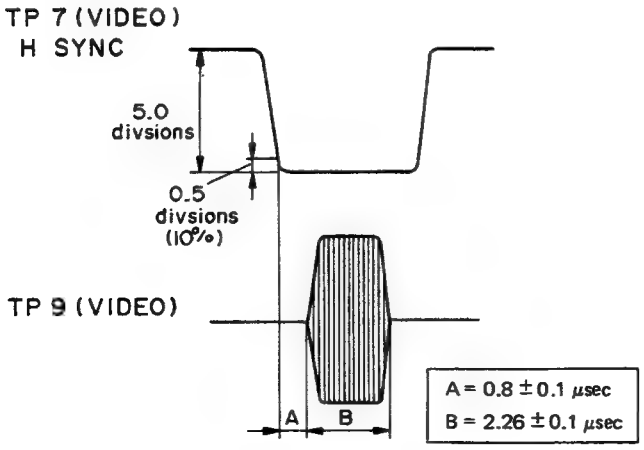


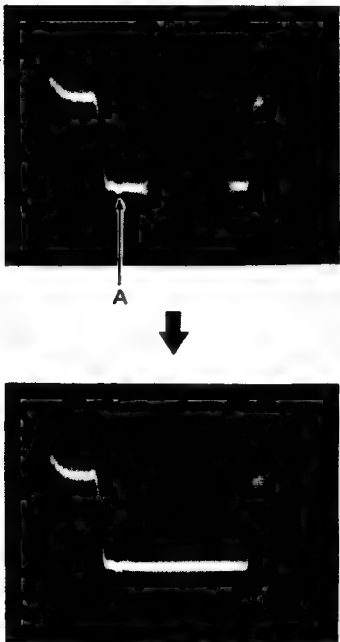
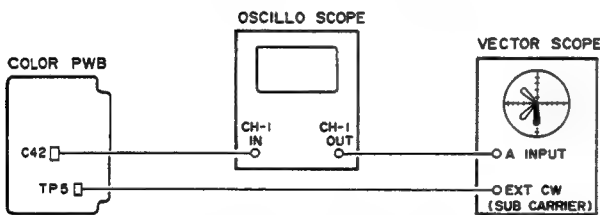
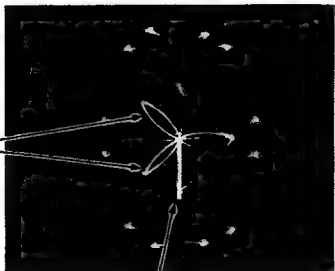
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
18	Video out V/S ratio	TP27 TP20 Y OUT (75-ohm termination)	R196 R417 R258	Color bars Monoscope or 100% White	REC ↓ PB REC ↓ PB	<p>• S-VHS mode</p> <ol style="list-style-type: none"> 1) Record and play back a color bar signal. 2) Turn R196 to set TP27 level to maximum. 3) Turn R417 counterclockwise (as viewed from pattern side of board) for minimum level. <p>Note: Output ceases if turned too far (min. level approx. 0.9 Vp-p).</p> <ol style="list-style-type: none"> 4) Adjust the oscilloscope to set the TP20 playback level to 5.0 scale divisions. 5) Adjust R196 to set the TP27 playback level to 5.0 scale divisions. 6) Measure Y OUT level with the oscilloscope and adjust R258 for 1.0 Vp-p. 7) Record and play back. 8) Adjust R417 to set the video to sync ratio at Y OUT to $V : S = 7 : 2.9-3.0$.
19	DOC level	TP20 TP27	R196	Color bars	REC ↓ PB	<p>• S-VHS mode</p> <ol style="list-style-type: none"> 1) Record and play back a color bar signal. 2) Set the TP20 playback level to 5.0 scale divisions on the oscilloscope. 3) Adjust R196 to set the TP27 level to 5.0 scale divisions.
20	DOC DC balance	IC23 pin 1 IC23 pin 6	R562	Color bars	REC ↓ PB	<p>• S-VHS mode</p> <ol style="list-style-type: none"> 1) Record the color bars signal and play it back. 2) Connect the oscilloscope to pin 1 of IC23. 3) Measure voltage between the sync tip and GND. 4) Connect the oscilloscope to pin 6 of IC23. 5) Adjust R562 so that the voltage measured between the GND and the sync tip is the same as that measured in the step 3).
DC voltage at pin 1 of IC23 = DC voltage at pin 6 of IC23						
21	REC/PB video out level	Y OUT (75-ohm termination) VIDEO OUT (75-ohm termination)	R258 R246	Color bars	REC ↓ PB	<p>• S-VHS mode</p> <ol style="list-style-type: none"> 1) Connect the oscilloscope to Y OUT. 2) Adjust R258 for 1.0 Vp-p Y level. 3) Connect the oscilloscope to VIDEO OUT. 4) Adjust R246 for 1.0 Vp-p Y level.
		VIDEO OUT (75-ohm termination)	R17	Color bars	REC ↓ PB	<p>• VHS mode</p> <ol style="list-style-type: none"> 5) Adjust R17 for 1 Vp-p level at VIDEO OUT.

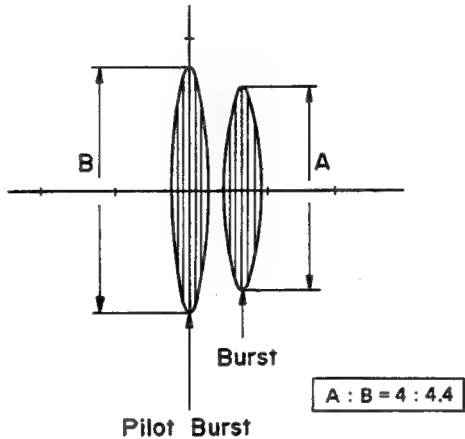
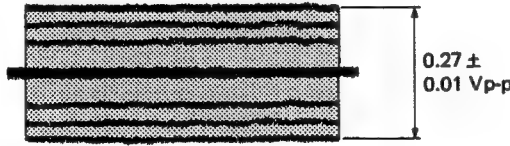
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
22	Noise cancel OFF pulse width	Y OUT IC12 pin 4 (TP54)	R54	Color bars	REC ↓ PB	<ol style="list-style-type: none"> 1) Connect the oscilloscope to Y OUT and IC12 pin 4. 2) Trigger the oscilloscope externally with signal from TP35. (+ slope) 3) Record the color bars signal in S-VHS mode and play it back. 4) Adjust R54 so that the falling point of TP38's pulse coincides with the falling point of the 22H V. blanking pulse.
						
23	REC/PB frequency response	Y OUT (75-ohm termination)	R144	Sweep signal	REC ↓ PB	<ul style="list-style-type: none"> • S-VHS mode <ol style="list-style-type: none"> 1) Record and play back a sweep signal. 2) Trigger the oscilloscope externally with the signal from TP35. 3) Adjust the oscilloscope to set the 100 kHz level of the waveform at Y OUT to 5.0 scale divisions. Then adjust R144 to set the 4 MHz level to 4 scale divisions. <p>Notes:</p> <ul style="list-style-type: none"> • If channel difference, adjust for the larger level. • With larger level at 4.0 scale divisions, confirm smaller level is greater than 3.6 scale divisions (−1 dB).
						
						
<p style="text-align: center;">R153</p> <p style="text-align: center;">Sweep signal</p> <p style="text-align: center;">REC ↓ PB</p> <ul style="list-style-type: none"> • VHS mode <ol style="list-style-type: none"> 4) In the same manner, adjust R153 to set the 2 MHz level to 3.5 scale divisions. <p>Notes:</p> <ul style="list-style-type: none"> • If channel difference, adjust for the larger level. • With larger level at 4.0 scale divisions, confirm smaller level is greater than 3.6 scale divisions (−1 dB). 						

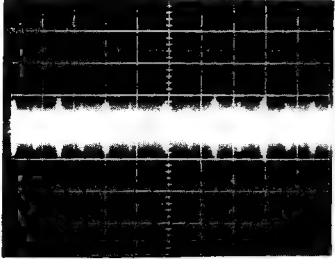
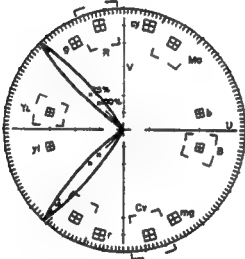
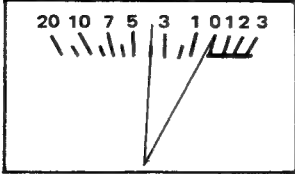
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
24	2H delay bias	TP1 TP2 (PB COMB PWB)	R2 R10 (PB COMB PWB)	Color bars	REC ↓ PB	1) Connect the oscilloscope to TP1 (TP2). 2) Adjust R2 to set the TP1 DC level of the sync tip to 2.7 VDC. 3) Adjust R10 to set the TP2 DC level of the sync tip to 2.5 VDC.
						
25	Comb filter	TP3 (PB COMB PWB)	R18 R22 (PB COMB PWB)	Stairstep	REC ↓ PB	• S-VHS mode INPUT SELECT : Y/C 443 1) Supply the stairstep signal to pin 1 of Y/C 443 INPUT connector. (Pin 2 : GND) 2) Connect the oscilloscope to TP3 and observe the waveform at H-rate. 3) Adjust R18 to shape the waveform at TP3 to be symmetrical with respect to the horizontal center line. 4) Adjust R22 to minimize and symmetrize serrations of the waveform on the upper and lower sides. Note: The PB COM board can be adjusted and observed even if it is removed from the COLOR board.
						
26	Noise cancel (Comb filter)	TP19	R239	Color bars (Color level is attenuated by 90%.)	REC ↓ PB	• Signal generator with adjustable color level 1) Set the INPUT SELECT switch to "Y/C 443". 2) Input the color bars signal whose color level is attenuated by 90% (10% level) to the Y/C IN Y terminal (pin 1). 3) Record the color bars signal in S-VHS mode and play it back. 4) Connect the oscilloscope to TP19. 5) Adjust R239 so that the residual chroma component in the 3rd step from the top of the color bars is minimized. Note: The PB COMB board can be adjusted signals to any input terminal such as BNC IN, Y/C IN, etc.
						
		VIDEO OUT (75-ohm termination) ↓ Video noise meter	R239	50% WHITE (without Burst) ↓ Y IN	REC ↓ PB	• Video noise meter is used for this adjustment. 1) Adjust R239 so that noise level becomes minimum.

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
27	REC/PB Y/C delay	VIDEO OUT (75-ohm termination)	R108 (COLOR PWB) R112 (COLOR PWB)	Pulse/Bar signal (20T)	REC ↓ PB	<ul style="list-style-type: none"> • S-VHS mode <ol style="list-style-type: none"> 1) Record and play back 20T pulse. 2) Adjust R108 to set the 20T pulse lower perimeter as flat as possible. 3) If flatness cannot be obtained, adjust for left and right symmetry from center. • VHS mode <ol style="list-style-type: none"> 4) Repeat above steps, but adjust R112. <p>Note: If adjustment is difficult, adjust R44 of the COLOR board.</p>
						
28	DG com- pensation	VIDEO OUT (75-ohm termination) ↓ Waveform monitor	R119 (COLOR PWB) R120 (COLOR PWB)	Stairstep (Modulated 5 steps)	REC ↓ PB	<ol style="list-style-type: none"> 1) Connect a waveform monitor to VIDEO OUT (CHROMA mode: 4.43 MHz BPF). <ul style="list-style-type: none"> • VHS mode <ol style="list-style-type: none"> 2) Record and play back 5-step stairstep with overlapped subcarrier. 3) Adjust R119 for flat color signal envelope. • S-VHS mode <ol style="list-style-type: none"> 4) Repeat above steps, but adjust R120. <p>Note: If waveform monitor is not available, connect oscilloscope to Y OUT.</p>
						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
29	VXO	TP5 (COLOR PWB) ↓ Frequency counter	C54 (COLOR PWB)	MHVE-2H (Color bars)	PB	1) Play the color bar signal of the MHVE-2H alignment tape. 2) Connect the frequency counter to TP5. 3) Adjust C54 for $4,433,619 \pm 50$ Hz.
30	VCO	TP10 (COLOR PWB)	R61 (COLOR PWB)	No signal	E-E	1) Supply 2.5 V DC to the line between TP8 and TP GND from a regulated DC power supply unit. 2) Connect the frequency counter to TP10. 3) Adjust R61 for 5.015 ± 0.05 MHz.
						
31	Pilot burst width & position	TP7 TP9	R5 R10 (COLOR SUB PWB)	Color bars	REC	•S-VHS mode 1) Connect CH-1 of a dual-trace oscilloscope to TP7 and CH-2 to TP9. 2) Adjust R5 so that a 1/10 level of point of the fall of H. sync at TP7 delays 0.8 ± 0.1 μ sec against the pilot burst at TP9. 3) Adjust R10 so that the pilot burst width at TP9 becomes 2.26 ± 0.1 μ sec.
						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
32	Pilot burst cancel	VIDEO OUT (75-ohm termination)	R1 R7 (COLOR SUB PWB)	Color bars	REC ↓ PB	• S-VHS mode <ol style="list-style-type: none"> 1) Use spare tape, record and play back a color bar signal. 2) Turn R7 fully counter clockwise (viewed from the pattern side). 3) Adjust R1 so that the start point of the pilot burst signal coincides with the point A of the H. sync signal. 4) Adjust R7 to erase the waveform of the pilot burst signal on the oscilloscope.
		VIDEO OUT (H SYNC) 				
33	Pilot burst phase	TP5, C42 (COLOR PWB)	R52 (COLOR PWB)	Color barst	REC	S-VHS mode <ol style="list-style-type: none"> 1) Connect the oscilloscope's CH-1 IN terminal to C42 for amplification, while connect its CH-1 OUT terminal to the vectorscope's INPUT terminal. 2) Connect the vectorscope's EXT. CW terminal and TP5 (REF. 4.43 MHz). 3) Use the vecorscope's PHASE VR to adjust the burst phase for the normal. At this time, adjust the burst level for convenience of the adjustment with the GAIN VR of the vectorscope. 4) Adjust R52 so that the pilot burst phase becomes $270 \pm 5^\circ$.
		 				

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
34	Pilot burst level	TP9	R51 (COLOR PWB)	Color bars	REC	<p>• S-VHS mode</p> <p>1) Connect the oscilloscope to TP9. Adjust the oscilloscope to set the burst level to 4.0 scale divisions.</p> <p>2) Adjust R51 to set the pilot burst level to 4.4 scale divisions (110%).</p>
						
35	CNR input level	TP2 (COLOR PWB)	R32 (COLOR PWB)	Color bars	REC ↓ PB	<p>• S-VHS mode</p> <p>1) Record and play back a color bar signal.</p> <p>2) Adjust R32 for 0.27 ± 0.01 Vp-p at TP2.</p>
						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
36	CNR NR balance	TP4 (COLOR PWB) 	R38 (COLOR PWB) L6 (COLOR PWB)	Color bars	REC ↓ PB	<ul style="list-style-type: none"> • S-VHS mode 1) Record and play back a color bar signal. 2) Adjust R38 and L6 to minimize the 4.43 MHz component at TP4.
37	REC/PB color level	VIDEO OUT (75-ohm termination) ↓ Vectorscope 	R44 (COLOR PWB)	Color bars	REC ↓ PB	<ul style="list-style-type: none"> • S-VHS mode 1) Record the colour bars signal and play it back. 2) With input of the reference colour bars signal (EBU75%) to a vectorscope, adjust the vectorscope's GAIN control so that burst level crosses the scope's circumference. 3) Change the input signal to the vector-scope from the reference colour bars signal to PB signal from the Y/C443 OUT. 4) Adjust R44 to equalize level of the luminous point of the burst signal with the level of the reference colour bars signal.
38	Tracking meter	Tracking meter 	R411	Color bars	REC ↓ PB	<ul style="list-style-type: none"> • S-VHS mode 1) Set the METER SELECT switch to TRACKING and set the Tracking control to center detent. 2) Record and play back a color bar signal. 3) Adjust R411 so that indicator reads just 1 of the scale. • VHS mode 4) Confirm the indicator between 0 and 4 of the scale. (See figure)

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
39	Noise canceller	Y OUT (75-ohm termination)	R9 (AD REC PWB)	100% Chroma	REC ↓ PB	• S-VHS mode <ol style="list-style-type: none"> 1) Trigger the oscilloscope externally with signal of TP9 of the COLOR board. 2) Record the blue signal and play it back. 3) Measure the level "A" shown in the figure on the left. 4) Change the set position of R9 and record the blue signal again to measure the level "A" by playing it back. 5) Repeat the steps 2), 3) and 4) and finally set R9 with the minimum value of the level "A" obtained. Reference: When it is difficult to judge the minimum point of the level "A" through the above steps, record the signal as R9 is turned slowly and play it back to measure approximate value of the level "A".
		Same as above	R10 (AD REC PWB)	Same as above	REC ↓ PB	• VHS mode <ol style="list-style-type: none"> 6) In VHS mode, use R10 for adjustments of the above steps 2) through 5).
40	Video PB FM level	TP25	—	Color bars	REC ↓ PB	• VHS mode <ol style="list-style-type: none"> 1) Trigger the oscilloscope externally with the signal from TP35. 2) Record and play back a color bar signal. 3) Confirm TP25 level of 0.385 to 0.415 Vp-p. Note: If channel difference, confirm for the lower level. • S-VHS mode <ol style="list-style-type: none"> 4) Similarly, confirm TP25 level of 0.30 to 0.6 Vp-p.

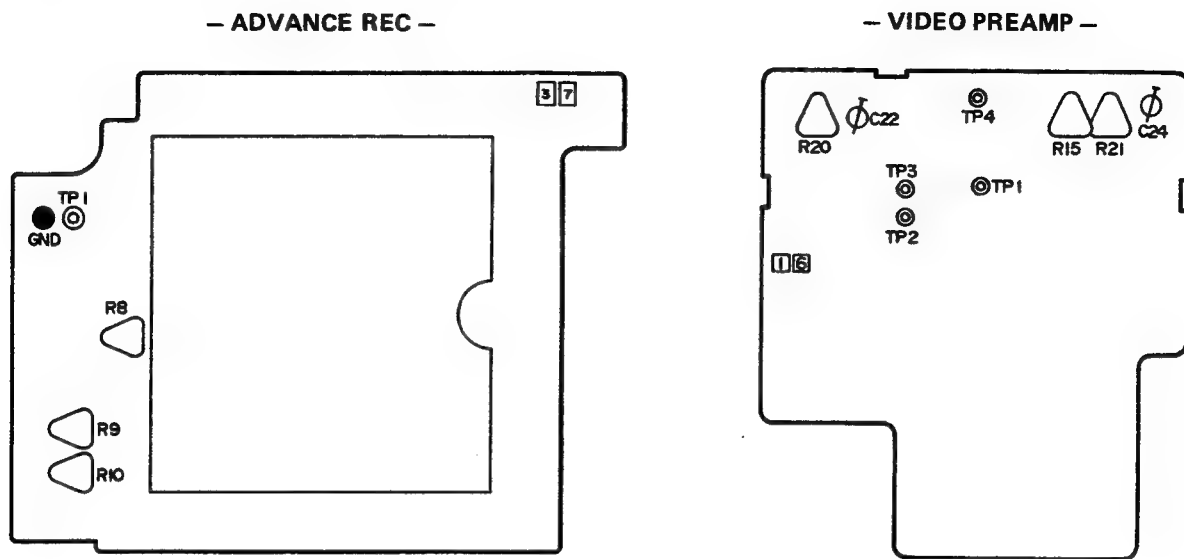
3.6 SYSCON CIRCUIT

Note: This adjustment requires a variable 12 V DC power source.

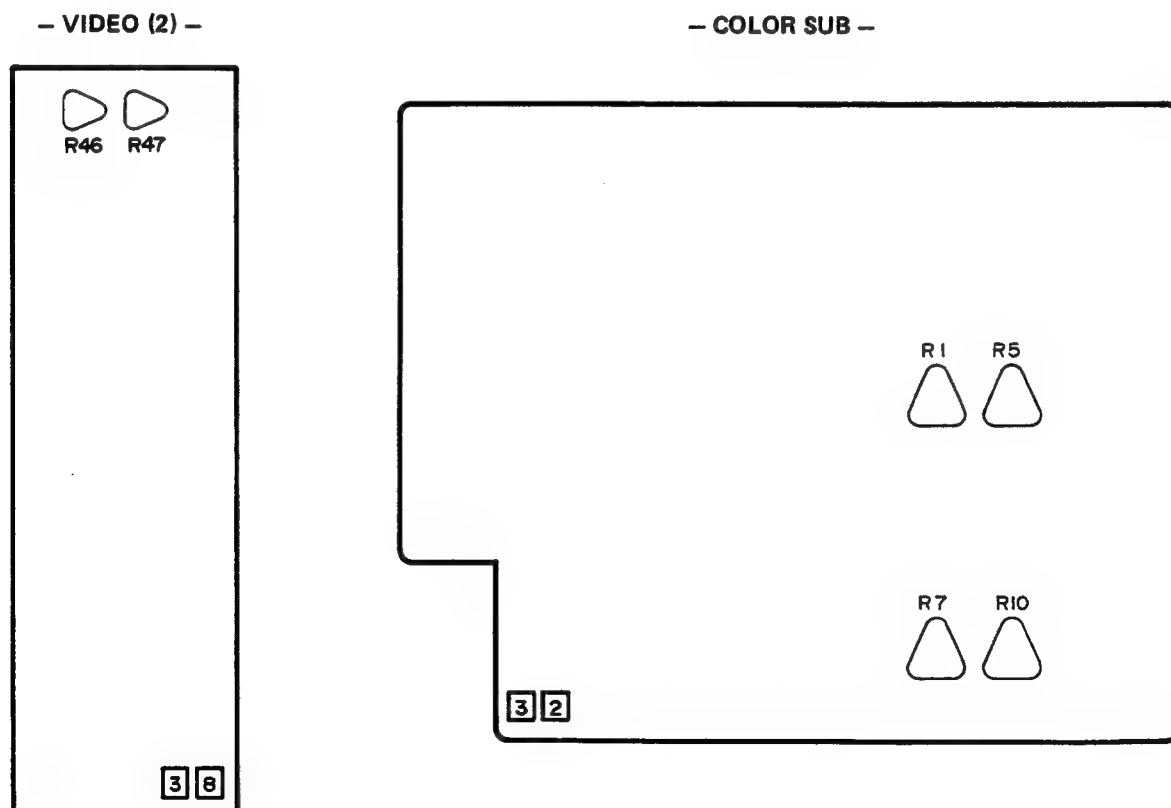
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	Battery down indicator	TP4 (REG)	12 VDC INPUT power source	Color bars	REC	<ol style="list-style-type: none"> 1) Connect a digital voltmeter to REGULATOR board TP4 (+), connect ground to the shield case. 2) Adjust power source for 10.3 ± 0.05 V.
		TP3 (SYSCON)	R65 (SYSCON)	Color bars	REC	<ol style="list-style-type: none"> 3) Adjust R65 so that TP3 drops from High to Low.

3.7 LOCATION OF TEST POINTS AND ADJUSTMENT PARTS

3.7.1 ADVANCE REC BOARD/VIDEO PRE AMP BOARD

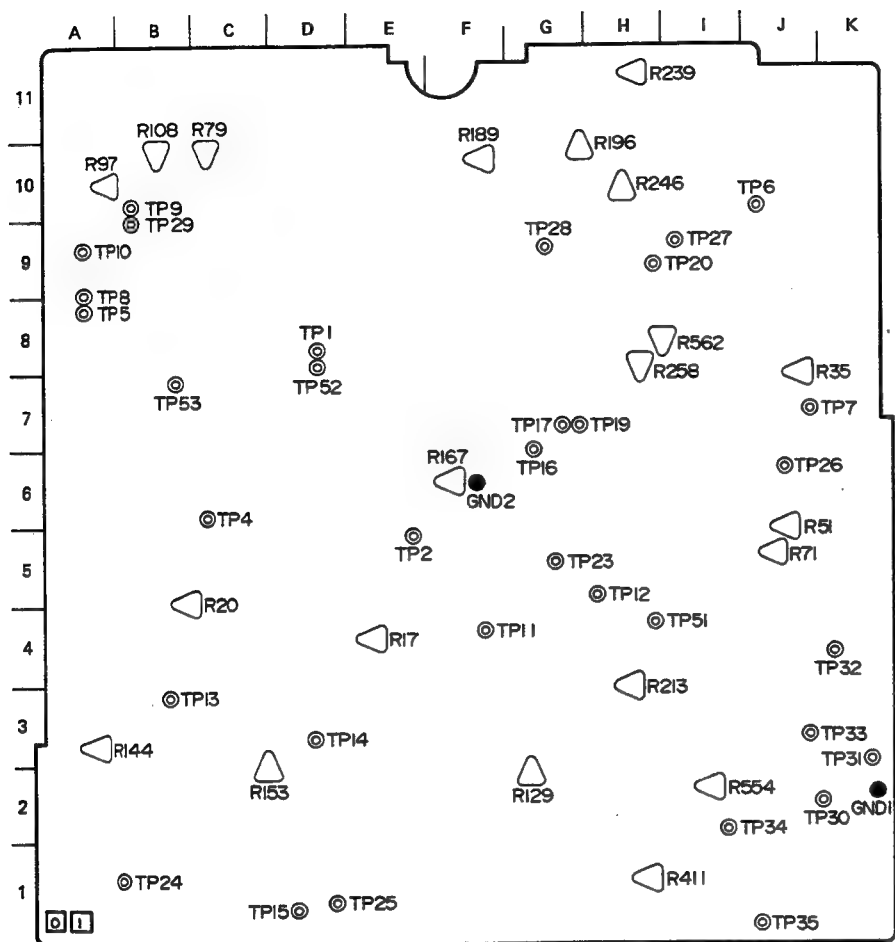


3.7.2 VIDEO (2) BOARD/COLOR SUB BOARD

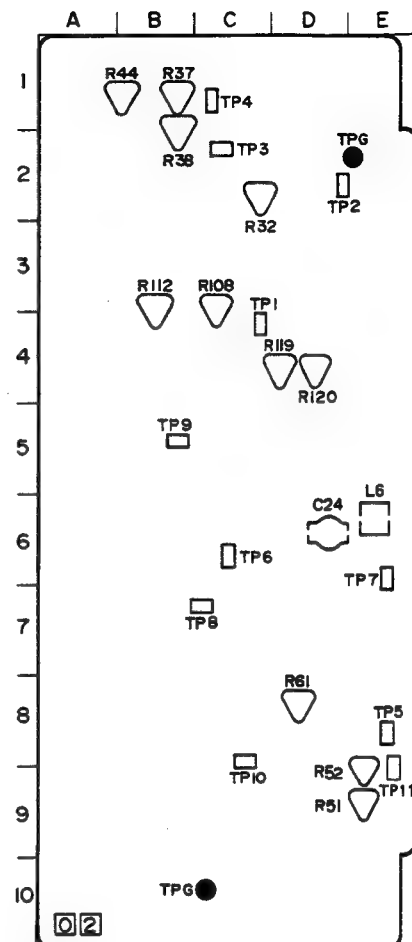


3.7.3 VIDEO BOARD/COLOR BOARD

— VIDEO —



— COLOR —



— VIDEO —

TP	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	23
Location	D8	E5	C6	A8	J9	J7	A8	B9	A9	F4	H5	B3	D3	D1	G6	G7	G7	H9	G5
TP	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	GND1	GND2		
Location	B1	D1	J6	I9	G9	B9	K2	K3	K4	J3	I2	J1	H4	D7	B7	K2	F6		

R	17	20	51	71	79	97	108	129	144	153	167	189	196	213	239	246	258	411
Location	E4	B5	J5	J5	C10	A10	B10	G2	A3	C2	F6	F10	G10	H4	H11	H10	H7	H1
R	554	562																
Location	I2	H8																

— COLOR —

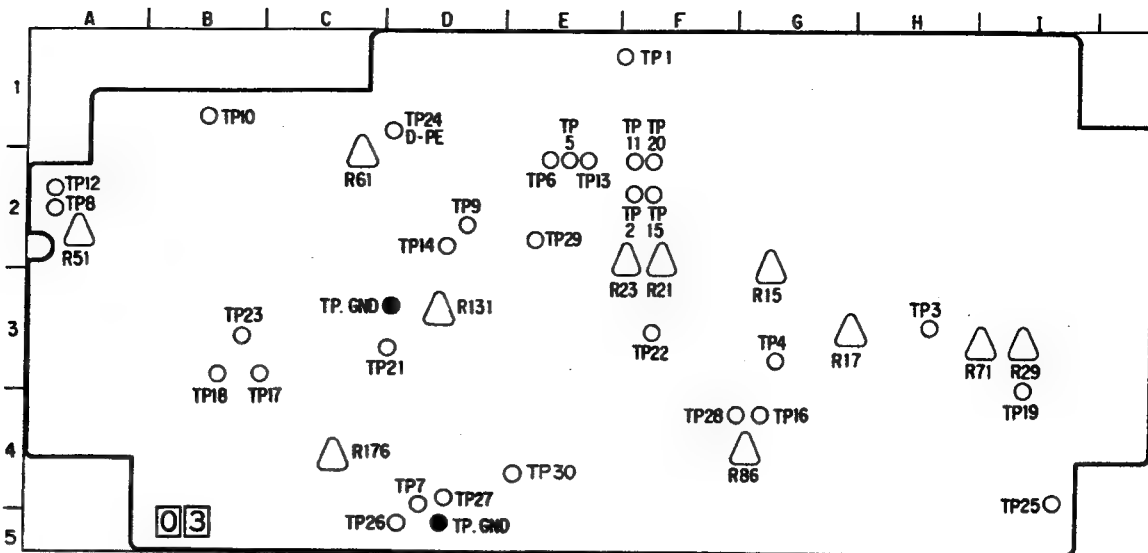
TP	1	2	3	4	5	6	7	8	9	10	11	GND	GND
Location	C4	D2	C2	C1	B8	C6	E6	C7	B5	C8	E8	C10	E2

C	24
Location	D6

R	32	38	44	51	52	61	108	112	119	120
Location	C2	B1	B1	E9	E8	D8	C3	B3	D4	D4

L	6
Location	E6

3.7.4 SERVO BOARD

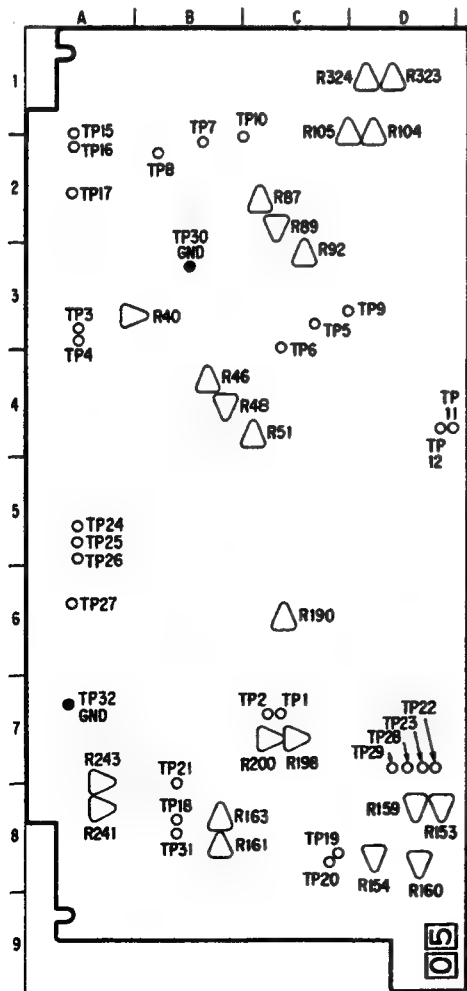


- SERVO BOARD -

TP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Location	F1	F2	H3	G3	E2	E2	D4	A2	D2	B1	F2	A2	E2	D2	F2	G4	B3	B3	I3	F2
TP	21	22	23	24	25	26	27	28	29	31	GND	GND								
Location	D3	F3	B3	D1	I4	D5	D4	G4	E2	E4	D3	D5								

R	15	17	21	23	29	51	61	71	86	131	176
Loaction	G2	H3	F2	F2	I3	A2	C2	I3	G4	D3	C4

3.7.5 AUDIO BOARD



— AUDIO BOARD —

TP	1	2	3	4	5	6	7	8	9	10
Location	C7	C7	A3	A3	C3	C3	B2	B2	C3	C1
TP	11	12	15	16	17	18	19	20	21	22
Location	D4	D4	A1	A2	A2	B8	C8	C8	B7	D7
TP	23	24	25	26	27	28	29	30	31	32
Location	D7	A5	A5	A5	A6	D7	D7	B3	B8	A7

R	40	46	48	51	87	89	92	104	105	153
Location	B3	B4	B4	C4	C2	C2	C3	D1	C1	D8
R	154	159	160	161	163	199	198	200	241	243
Location	D8	D8	D8	B8	B8	C6	C7	C7	A8	A7
R	323	324								
Location	D1	D1								

SECTION 4 DIAGRAMS AND CIRCUIT BOARDS

4.1 KEY TO ABBREVIATIONS

A	ACC	: Automatic Color Control
	ADD	: Adder
	ADC	: Analog to Digital Converter
	ADJ	: Adjustment
	A DUB	: Audio Dubbing
	AE	: Audio Erase
	AEF	: Automatic Edition Function
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	AH	: Audio Head
	AL	: After Loading
	ALC	: Automatic Level Control
	ALM	: Alarm
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Phase Control
	APL	: Average Picture Level
	ASSEM	: Assembly
	ASS'Y	: Assembly
	ATT	: Attenuator
	AUTO	: Automatic
	AUX	: Auxiliary
	AUD	: Audio

B	B	: Brake
	BAL	: Balance
	BATT	: Battery
	BCD	: Binary Coded Decimal
	BEG	: Beginning
	BFP	: Burst Flag Pulse
	BIT	: Binary Digit
	BLK	: Black
	BLU	: Blue
	BNC	: Bayonet connector
	BPF	: Bandpass Filter
	BRN	: Brown
	BRT	: Brightness
	B. SOL	: Brake Solenoid
	B/W	: Black and White

C	C	: Ceramic
	CAP	: Capstan
	CASS	: Cassette
	CF	: Ceramic Filter, color Frame
	CC	: Cassette compartment
	CE	: Chip Enable
	CH	: Channel
	CHROMA	: Chrominance
	CLK	: Clock
	CLR	: Clear
	CMD	: Command
	CNT	: Count, Counter
	CONV	: Converter

	COL	: Color
	COM	: Common
	COMP	: Comparator
		Composite
		Compensation
	CONN	: Connector
	CT	: Ceramic Trap
	CTC	: Crosstalk Cancel
	CTL	: Control

D	D	: Drum
	DAC	: Digital to Analog Converter
	DD	: Direct Drive
	DEC	: Decoder
	DEMODO	: Demodulator
	DET	: Detector
	DEV	: Deviation
	DFRS	: Drum Free RUN STOP
	DIF TRANS	: Differential Transformer
	DISCR	: Discriminator
	DL	: Delay Line
	DOC	: Dropout Compensator
	DRUM FF	: Drum Flip Flop
	DUB	: Dubbing

E	E	: Edit, Erase
	EDP	: Electronic Data Processing
	E-E	: Electric to Electric
	EF	: Emitter-Follower
	EMPHA	: Emphasis
	EMG	: Emergency
	ENC	: Encoder
	EN	: Enable
	EQ	: Equalizer
	ESNS	: End Sensor
	EXP	: Expander
	EXT	: External

F	FE	: Full Erase
	FF	: Fast Forward
		Flipflop
	FG	: Frequency Generator
	FM	: Frequency Modulation
	FMA	: FM Audio
	FREQ	: Frequency
	F-V CONV	: Frequency to Voltage Converter
	FWD	: Forward

G	GDL	: Grass Delay Line
	GEN LOCK	: Generator Lock
	GND	: Ground
	GRN	: Green
	GRY	: Gray

H	H	: High, Horizontal
	HG	: Hall Generator
	HPF	: Highpass Filter

I	IF	: Intermediate Frequency
	IFT	: Intermediate Frequency Transformer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter
	I/O	: Input/Output

L	L	: Low
	LB	: Low Band
	LCD	: Liquid Crystal Display
	LE	: Loading End
	LED	: Light Emitting Diode
	LIN	: Linearity
	LIM	: Limiter
	LOAD	: Loading
	LP	: Long Play
	LPF	: Lowpass Filter
	LT	: Loading Tension

M	MAX	: Maximum
	MDA	: Motor Drive Amplifier
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer
	MM	: Monostable Multivibrator
	MOD	: Modulator
	MON	: Monitor
	MOS	: Metal Oxide Semiconductor
	MPX	: Multiplexer
	MS	: Mode Select
	MUT	: Muting

N	NC	: Noise Cancel
	NFB	: Negative Feedback
	NO	: Normally Open

O	OPAMP	: Operational Amplifier
	OP	: Operation
	ORN	: Orange
	OSC	: Oscillator

P	PB	: Playback
	PC	: Photocoupler
	PCM	: Pulse Code Modulation
	PGM	: Program
	PG	: Pulse Generator
	PI	: Photo Interrupter
	PLL	: Phase Locked Loop
	POS	: Position
	PR	: Pinch Roller
	PREV	: Preview
	PRL	: Preroll
	PU	: Pickup
	PWB	: Printed Wiring Board

Q	Q	: Quality Factor
----------	---	------------------

R	RA	: Resistor Array
		: Random Access
	RAM	: Random Access Memory
	REC	: Recording

	REG	: Regulated
	REV	: Reverse
	REW	: Rewind
	RF	: Radio Frequency
	RST	: Reset
	R/P	: Record/Playback
	RPT	: Repeat
	RT	: Rotary Transformer
	RY	: Relay

S	S	: Search, Servo
	SC	: Subcarrier
	SEAR	: Search
	SEL	: Select
	SENS	: Sensor
	SEP	: Separator
	SF	: Source Follower
	SFF	: Short Fast Forward
	SFWD	: Search Forward
	SI	: Serial In
	SIG	: Signal
	SO	: Serial Out
	SOL	: Solenoid
	SOS	: Sound on Sound
	SP	: Standard Play
	SR	: Supply Reel
	SREV	: Search Reverse
	SREW	: Short Rewind
	SSG	: Sync-Signal Generator
	STL	: Still
	SUP	: Supply
	SYNC	: Synchronization
	SYSCON	: System control

T	TBC	: Time Base Corrector
	TC	: Tension Control, Time Code
	TDG	: Time Date Generator
	T. EALM	: Tape End Alarm
	TEN	: Tension
	TIM	: Timing
	TK	: Tracking
	TL	: Time Lapse
	TREC	: Timer Record
	TSW	: Time Switch
	TU	: Take-up
	TUR	: Take-up Reel

U	UNLD	: Unloading
	UNREG	: Unregulated
	UNSW	: Unswitched

V	V	: Video, Vertical
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VXO	: Variable Crystal Oscillator
	VLT	: Violet
	VSCH	: Variable Search

W	WHT	: White
	WV	: Working Voltage
	WARN	: Warning

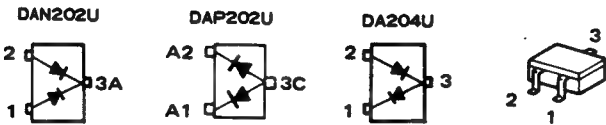
X	XTL	: Crystal
----------	-----	-----------

Y	Y	: Luminance
	YLW	: Yellow

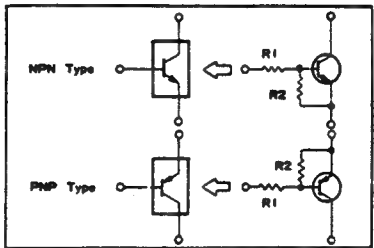
4.2 REPLACING SUBMINIATURE "CHIP" PARTS

- 1. Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
 - 2. Additional compactness is achieved by using subminiature chip parts for certain circuit elements. When replacing these parts, note the cautions outlined below.
- Chip transistors and diodes used in this model are outlined as follows.

• Chip diode



• Digital transistor



RESISTOR VALUES

JUNCTION	Part No.	R1 (kΩ)	R2 (kΩ)
PNP	DTA144EK	47	47
	DTA124E	22	22
NPN	DTC144EK	47	47
	DTC124EK	22	22

Note: The digital transistor includes built in resistors. It features small size and high reliability. Both PNP and NPN types are available.

USES: INVERTER, INTERFACE, DRIVER CIRCUITS.

• Chip transistor and chip diode imprinting

Transistors				Diodes	
Type	Imprinting	Type	Imprinting	Type	Imprinting
DTA124EK	15	2SD601(S)	YS	DA204K	K
DTA144EK	16	2SD601A(QR)	ZQ, ZR	DAP202K	P
DTC124EK	25	2SD1328ST	1DS, 1DT	DAN202K	N
DTC144EK	26	2SD621	30		
2SA1022C	EC	FMW3	W3		
2SA1037K	FQ, FR, FS	FMS3	S3		
2SB709	AO – AT				
2SB709A(QR)	BQ, BR				
2SC2405	SR, SS, ST				
2SC2405(ST)	SS, ST				
2SC2411K(QR)	CR, CQ				
2SC2412K	BQ, BR, BS				
2SC2412K(S)	BS				
2SC2412K(RS)	BR, BS				
2SC2778C	KC				
2SD601	YO – YT				
2SD601A	ZQ, ZR, ZS				

Note : () refers to Transistor rank.

- 3. Required tools:
 - 1) Fine tipped, well insulated soldering "pencil" (with absorbent) (Temp : 130°C ~ 260°C).
 - 2) Tweezers
 - 3) Blower type hair dryer.
- 4. Soldering cautions:
 - 1) Do not apply heat for more than 3 seconds.
 - 2) Avoid using a rubbing stroke when soldering.
 - 3) Discard removed chips; do not reuse them.
 - 4) Supplementary cementing is not required.
 - 5) Use care not to scratch or otherwise damage the chips.

- 5. Soldering conditions:
 - 1) Resistors, capacitors, etc.

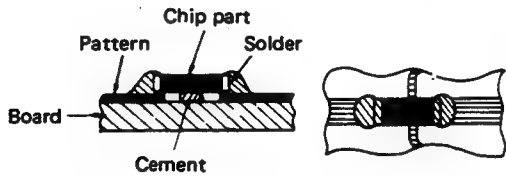


Fig. 4-1

- 2) Transistors, diodes, etc.

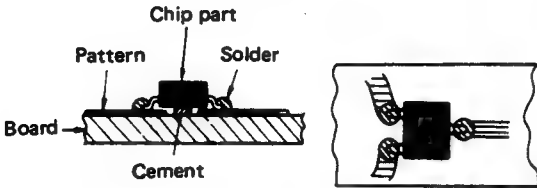


Fig. 4-2

- 6. Removal (resistors, capacitors, etc.):
 - 1) Grasp the part with repair jig and melt the solder at one side.

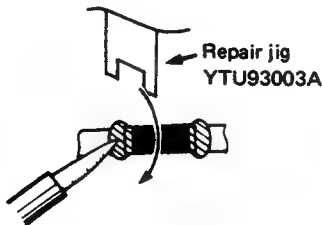


Fig. 4-3

- 2) Melt the solder at the other side and remove the part with a twisting motion.

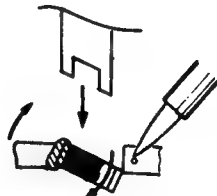


Fig. 4-4

- 7. Removal (transistors, diodes, etc.):
 - 1) Melt the solder of one lead.

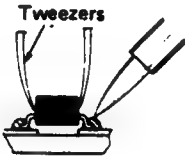


Fig. 4-5

- 2) Lift the side of that lead upward.



Fig. 4-6

- 3) Simultaneously heat solder of the two remaining leads and lift part to remove.

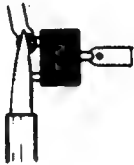


Fig. 4-7

- 8. Preheating (except for semiconductors):
 - Immediately before installing new resistors or capacitors, use a blower type hair dryer and preheat the part for about two minutes at approximately 150°C.

- 9. Replacement:
 - 1) Presolder the contact points of the circuit pattern.

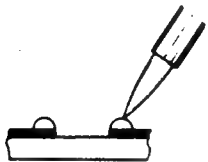


Fig. 4-8

- 2) Press the part downward with repair jig and apply the soldering pencil as indicated in the figure.

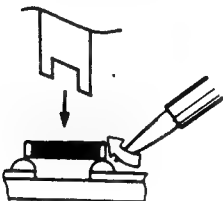
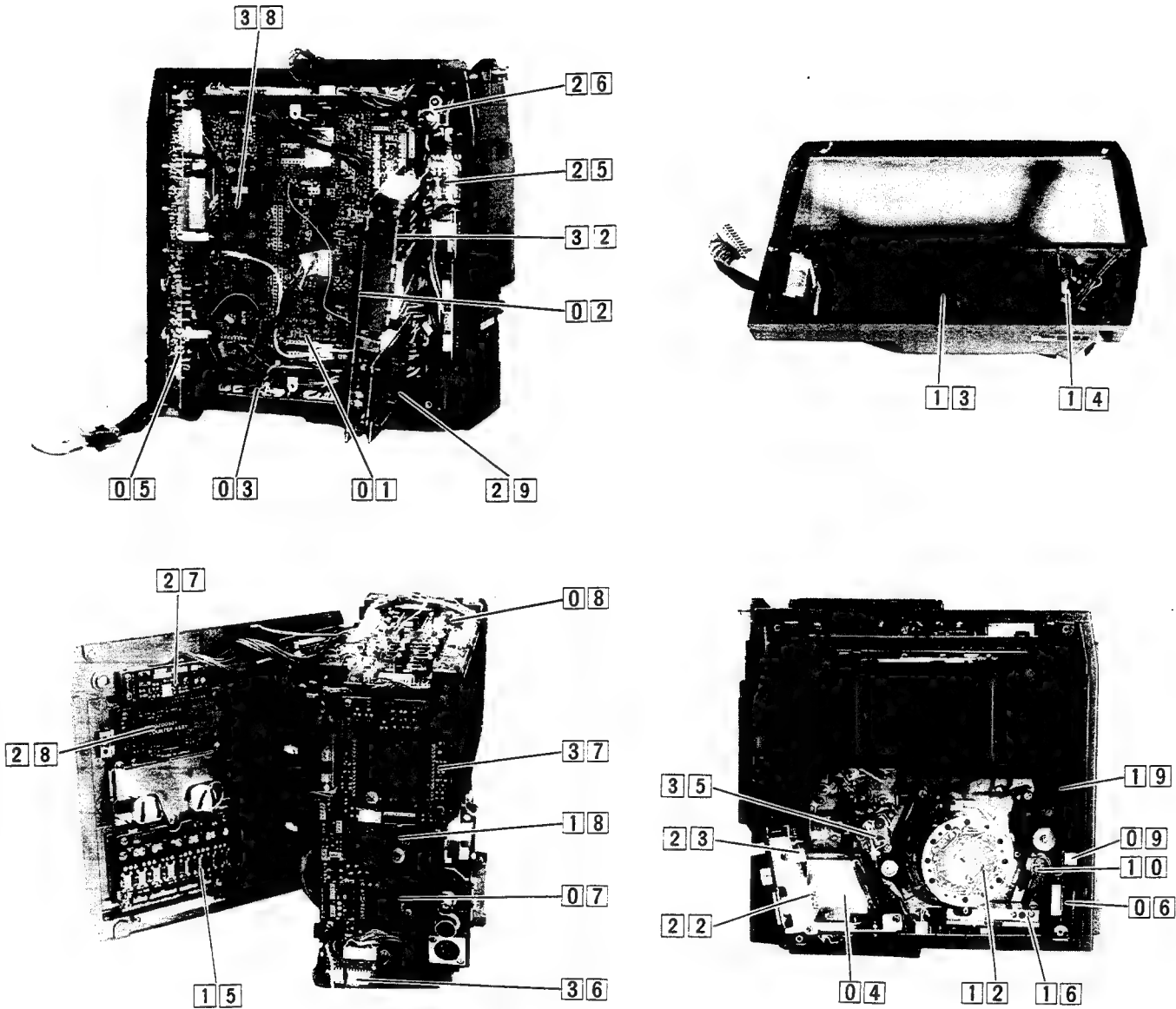


Fig. 4-9

4.3 CIRCUIT BOARD LOCATIONS

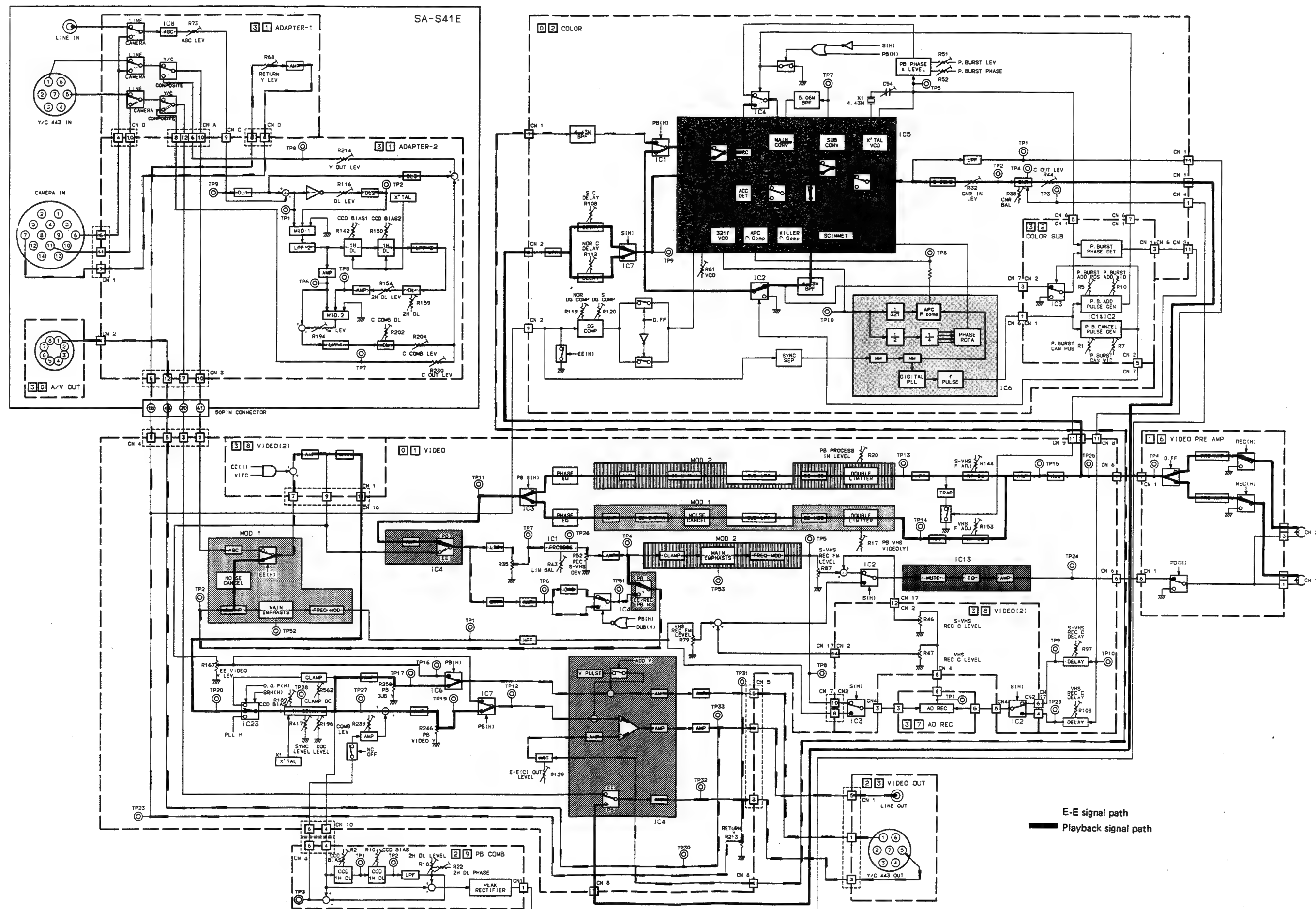
• Index to board by kind of diagram

Board No.	Board Name	Page of Diagram			
		Block Diagram	Schematic Diagram	Circuit Board	Parts List
01	VIDEO	4-5	4-10, 11	4-12, 13	6-6
02	COLOR	4-6	4-14	4-15	6-13
03	SERVO	4-7	4-30, 31	4-32	6-15
04	MDA	—	4-33	4-33	6-18
05	AUDIO	4-8	4-24	4-26, 27	6-18
05	FM AUDIO SUB	4-8	4-25	4-26, 27	6-23
06	FMA PRE AMP	—	4-23	4-23	6-24
07	REGULATOR	—	4-34	4-34	6-25
08	SYSCON	4-9	4-36	4-37	6-25
09	ERASE	—	4-34	4-34	6-27
10	FULL ERASE	—	—	—	6-28
13	XLR	—	4-28	4-29	6-28
14	AUDIO CONNECTOR	—	4-28	4-29	6-29
15	SWITCH	—	4-35	4-35	6-29
16	VIDEO PRE AMP	—	4-22	4-22	6-30
18	START SENSOR	—	—	4-40	6-30
19	END SENSOR	—	—	4-40	6-30
20	TAKE-UP SENSOR	—	—	4-40	—
21	SUPPLY SENSOR	—	—	4-40	—
22	DC IN	—	—	4-40	6-30
23	VIDEO OUTPUT	—	—	4-40	6-30
25	FUSE	—	—	4-40	6-31
26	MAIN SWITCH	—	—	4-40	6-31
27	OPERATION BUTTON	—	4-35	4-35	6-31
28	COUNTER	—	4-42	—	—
29	PB COMB	4-5	4-16	4-17	—
32	COLOR SUB	4-6	4-18	4-18	—
35	A/C HEAD	—	—	4-42	6-35
36	VITC JUNC	—	4-21	4-21	6-35
37	ADVANCE REC	—	4-20	4-20	6-35
38	VIDEO (2)	4-5	4-19	4-19	—
39	EARPHONE	—	4-28	4-29	6-36



6

4.4 VIDEO SYSTEM BLOCK DIAGRAM



3

2

1

A

B

C

4-4

4-4

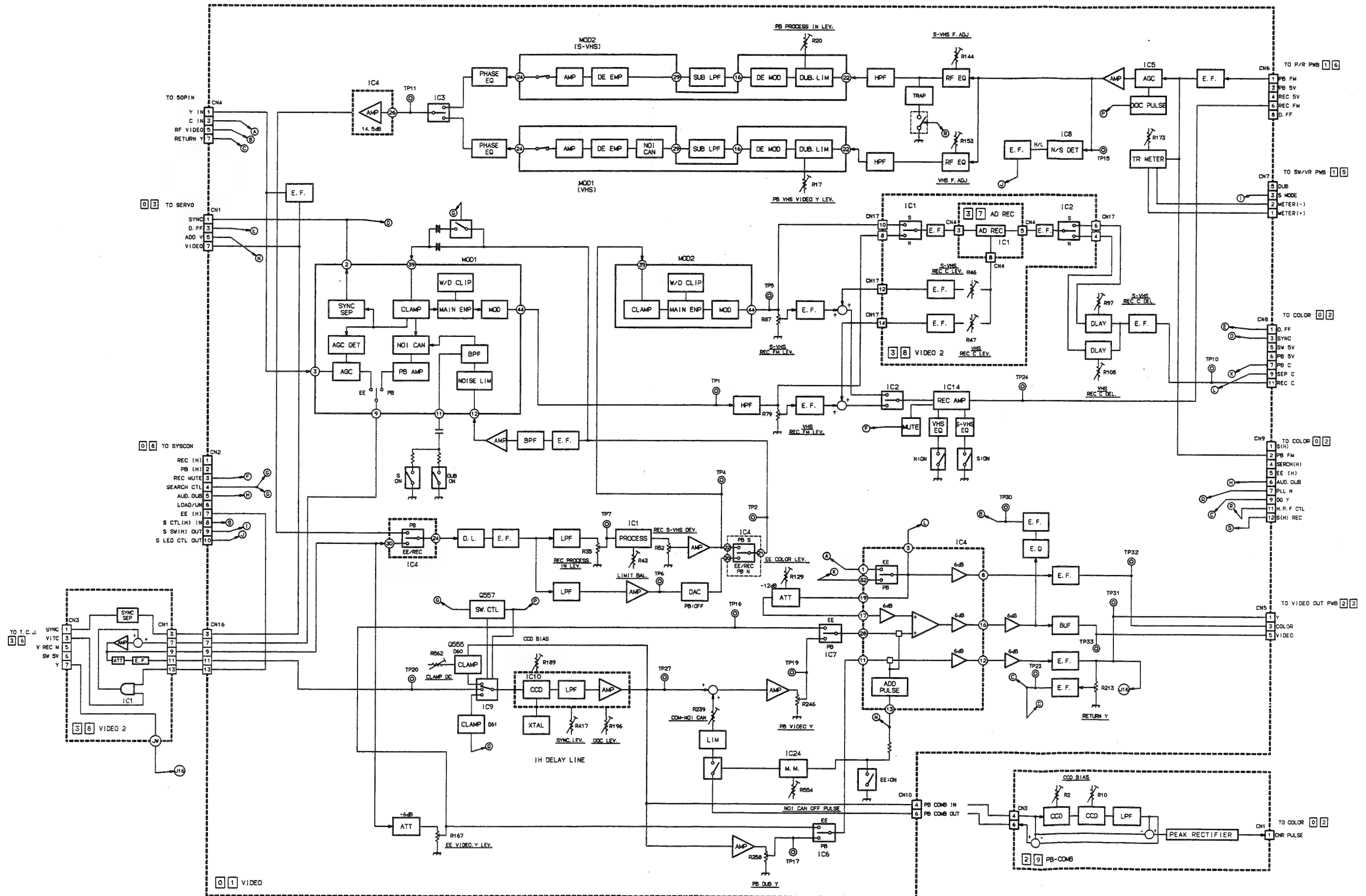
E

F

G

H

4.5 VIDEO BLOCK DIAGRAM



A

B

C

4-5

4-5

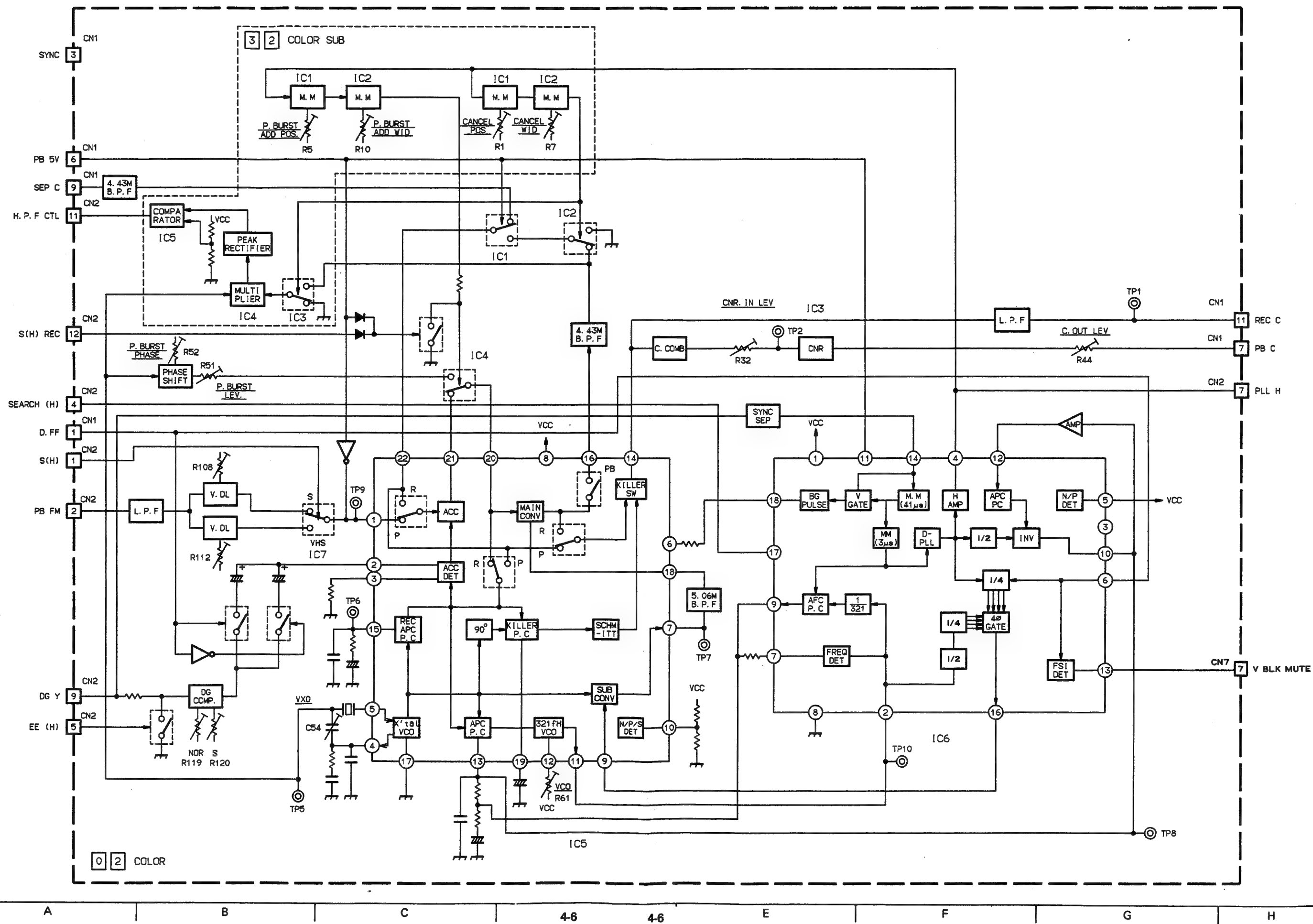
E

F

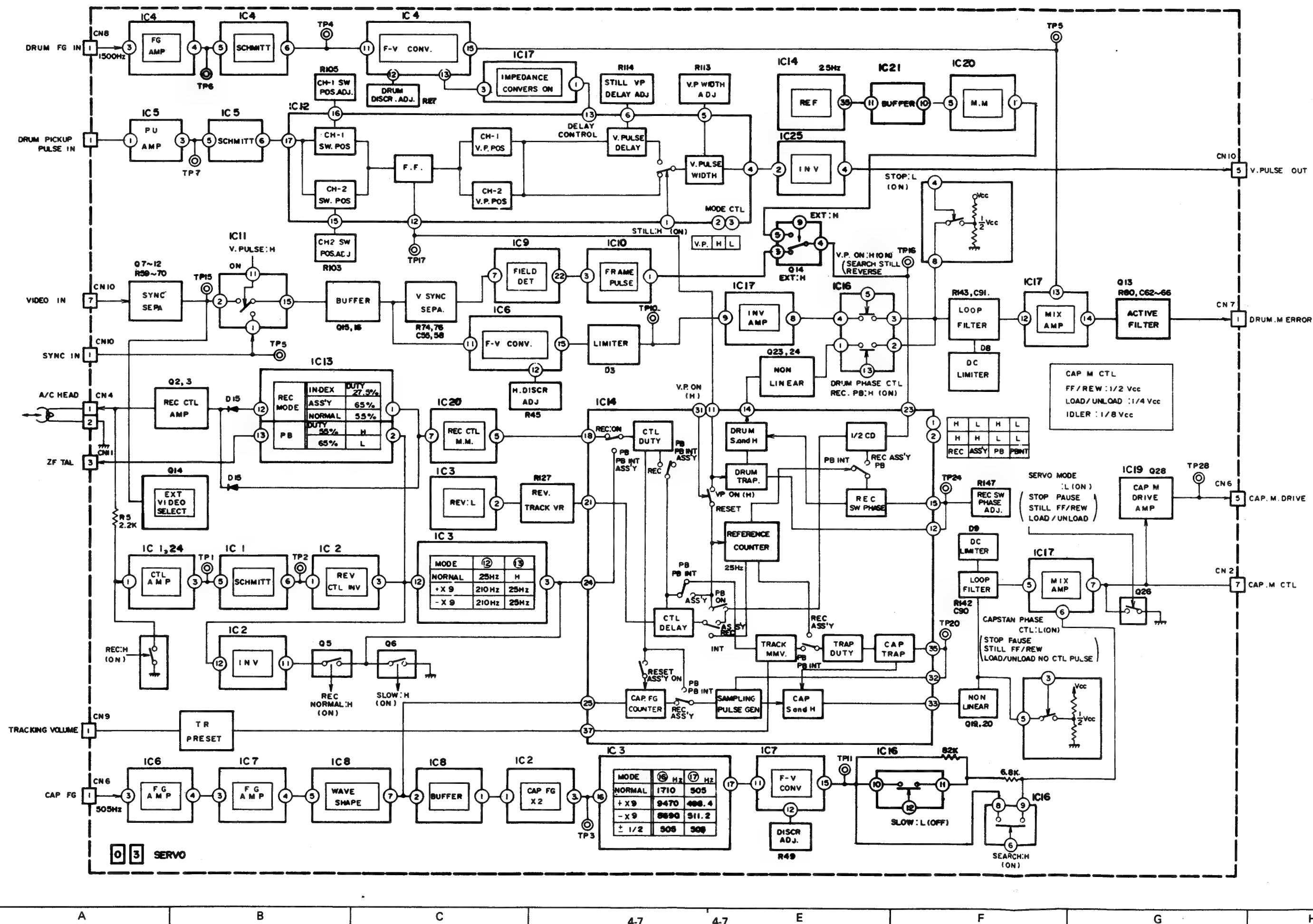
G

H

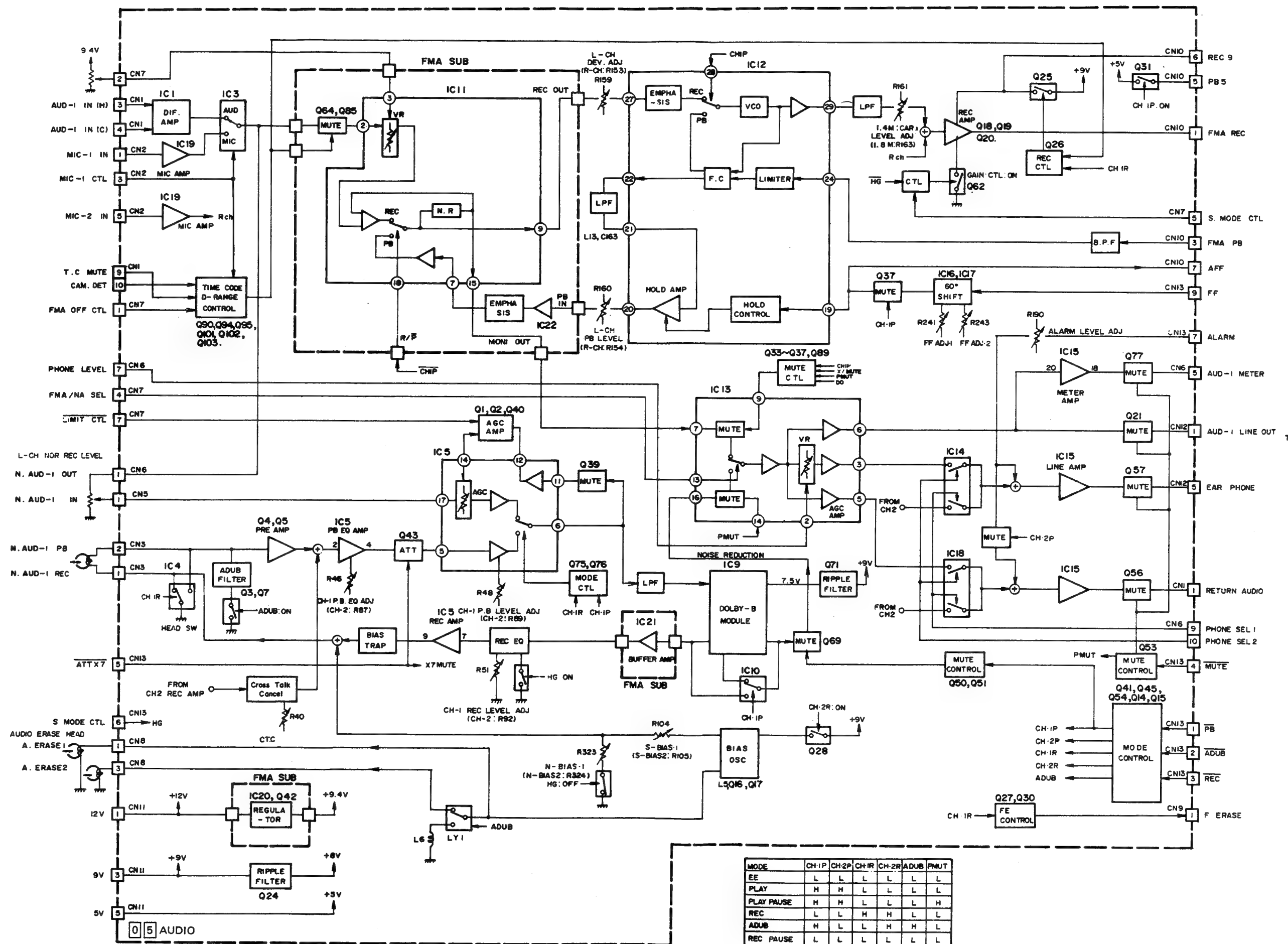
4.6 COLOR BLOCK DIAGRAM



4.7 SERVO BLOCK DIAGRAM

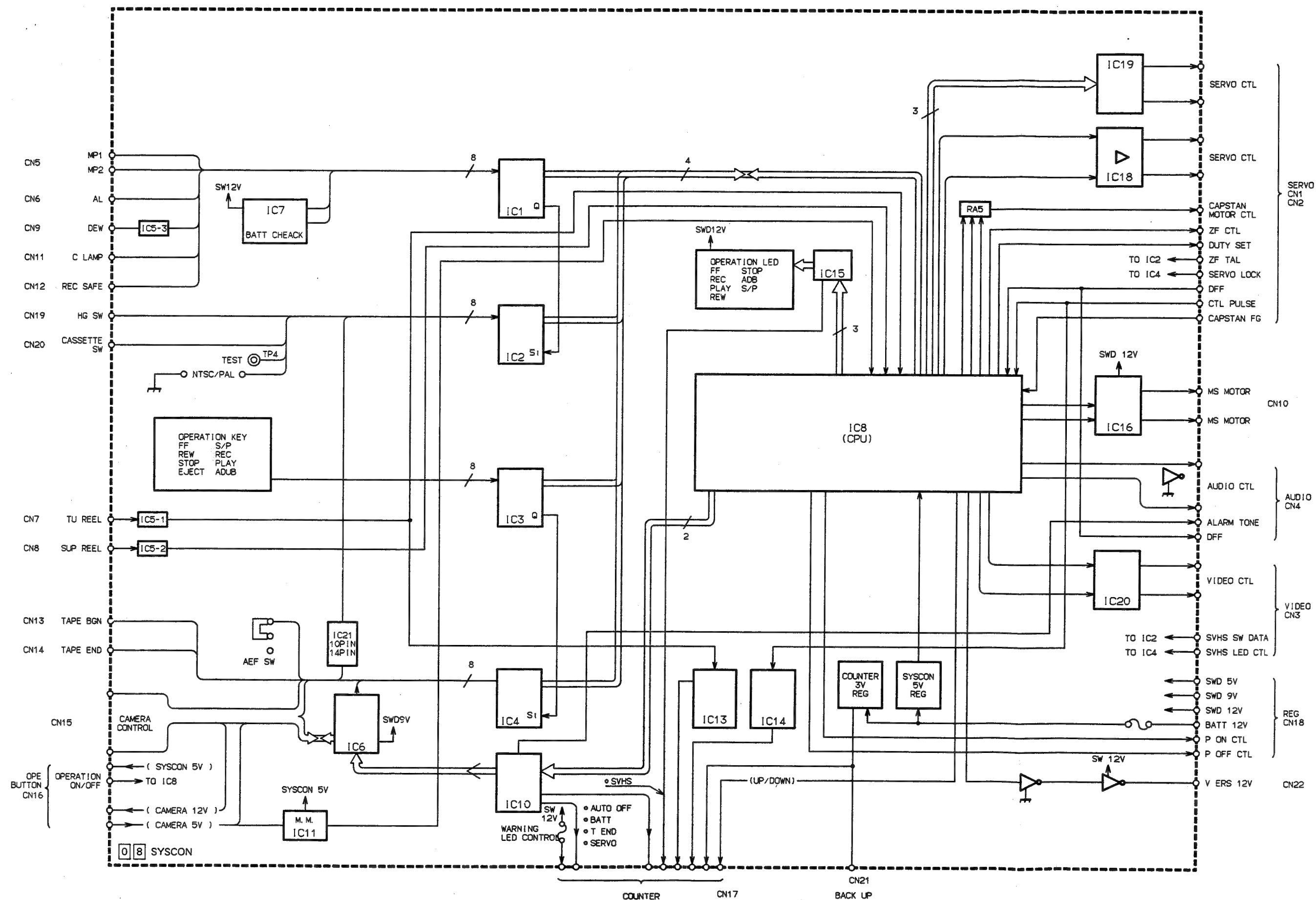


4.8 AUDIO BLOCK DIAGRAM

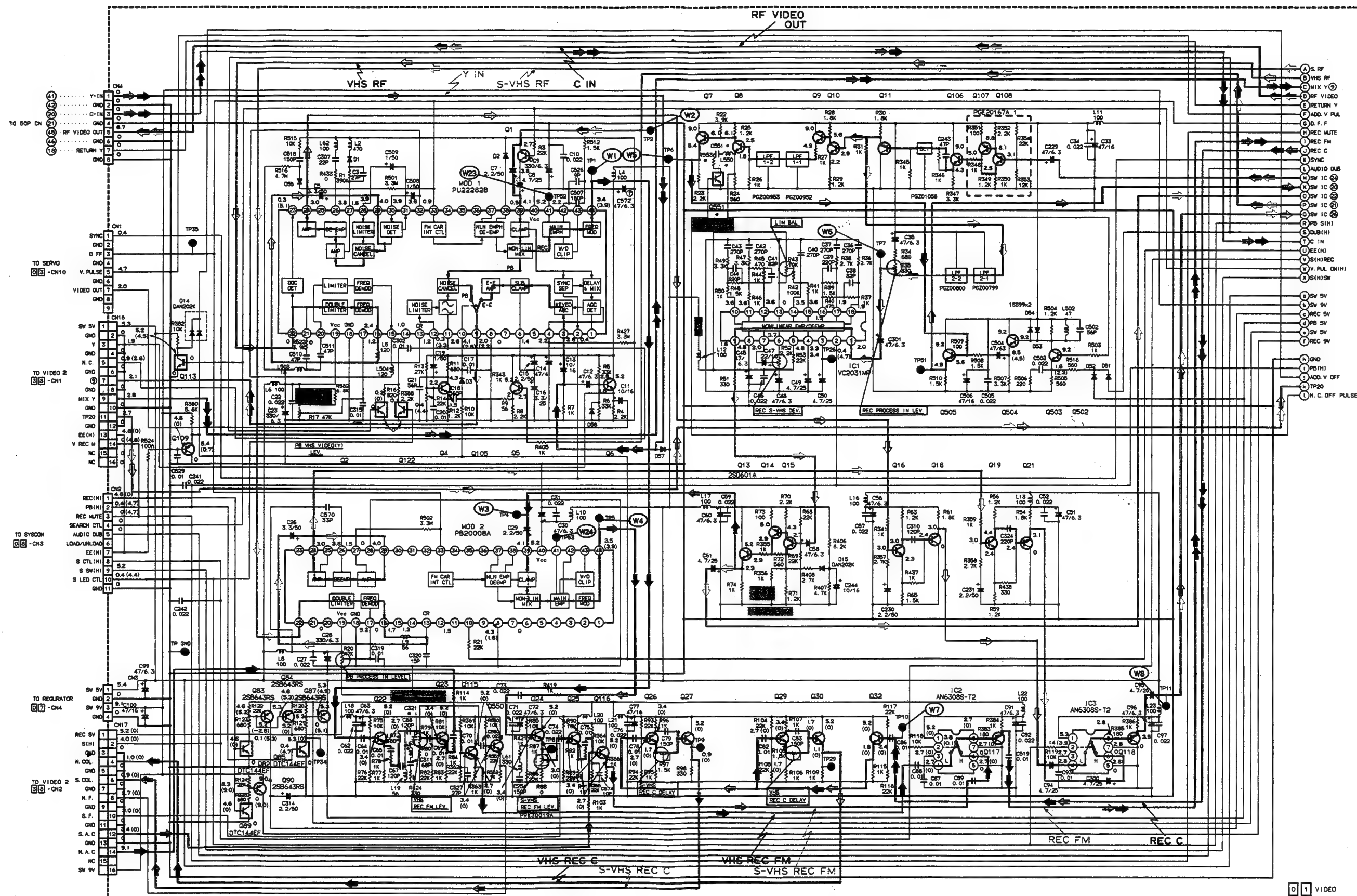


MODE	CH-1P	CH-2P	CH-1R	CH-2R	ADUB	PMUT
EE	L	L	L	L	L	L
PLAY	H	H	L	L	L	L
PLAY PAUSE	H	H	L	L	L	H
REC	L	L	H	H	L	L
ADUB	H	L	L	H	H	L
REC PAUSE	L	L	L	L	L	L

4.9 SYSCON BLOCK DIAGRAM



4.10 VIDEO SCHEMATIC DIAGRAM



A

B

C

4-10

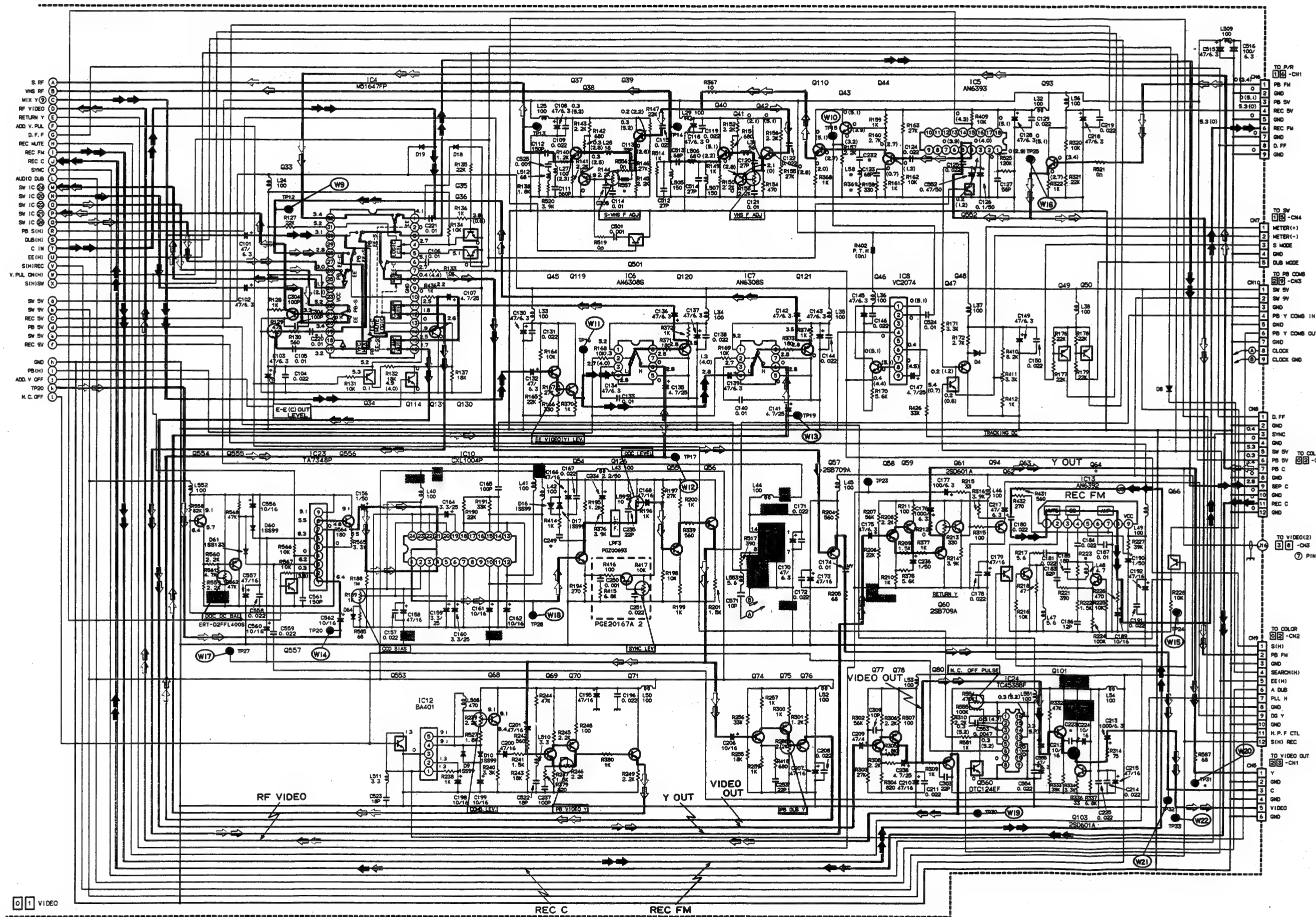
4-10

E

F

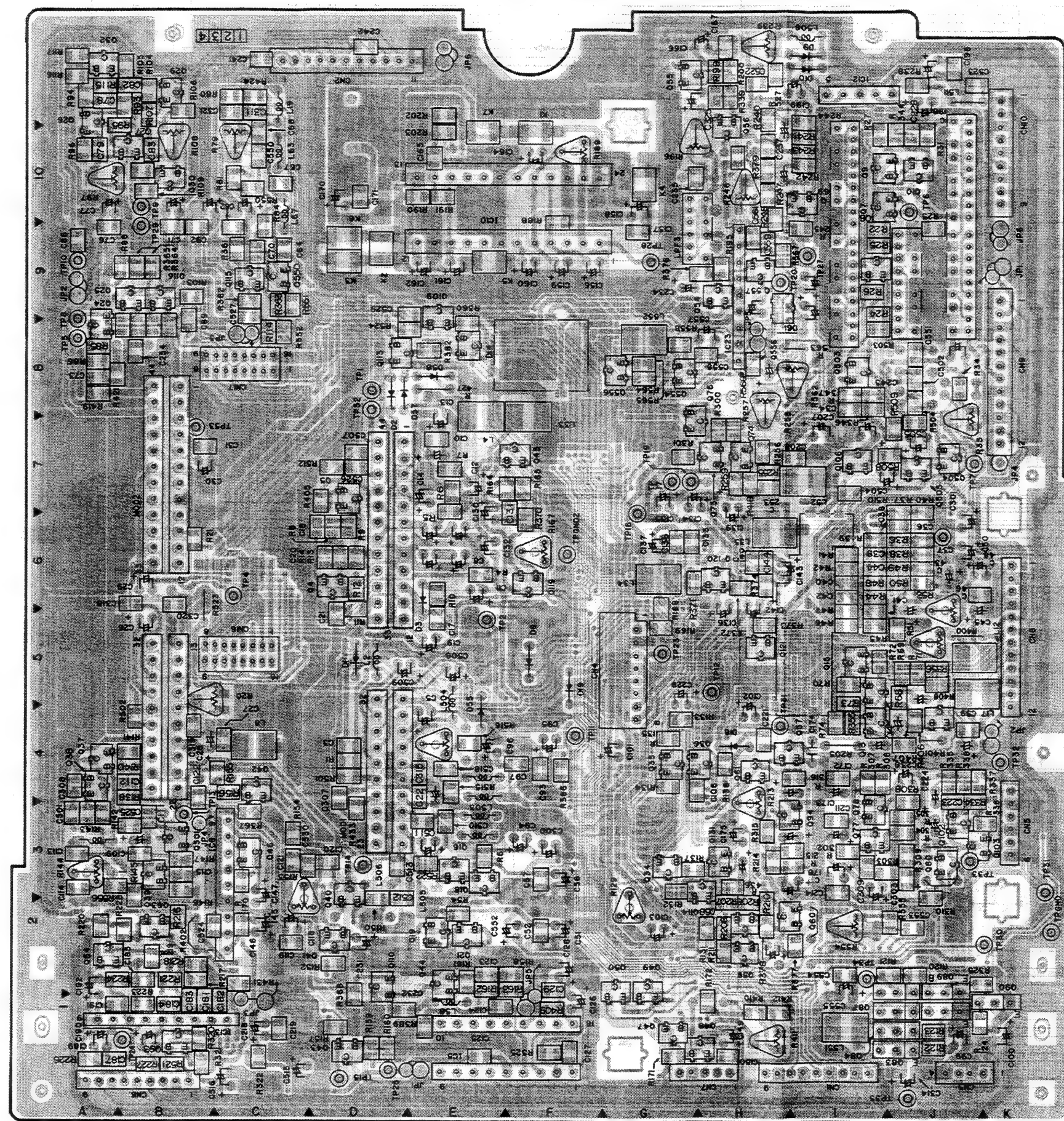
G







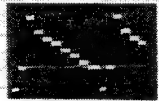
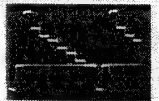







H



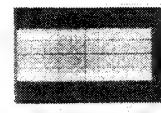

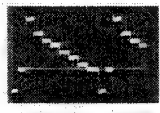
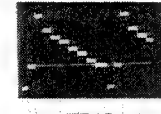



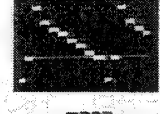







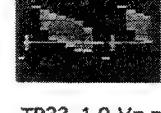
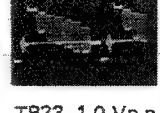


— Rear —

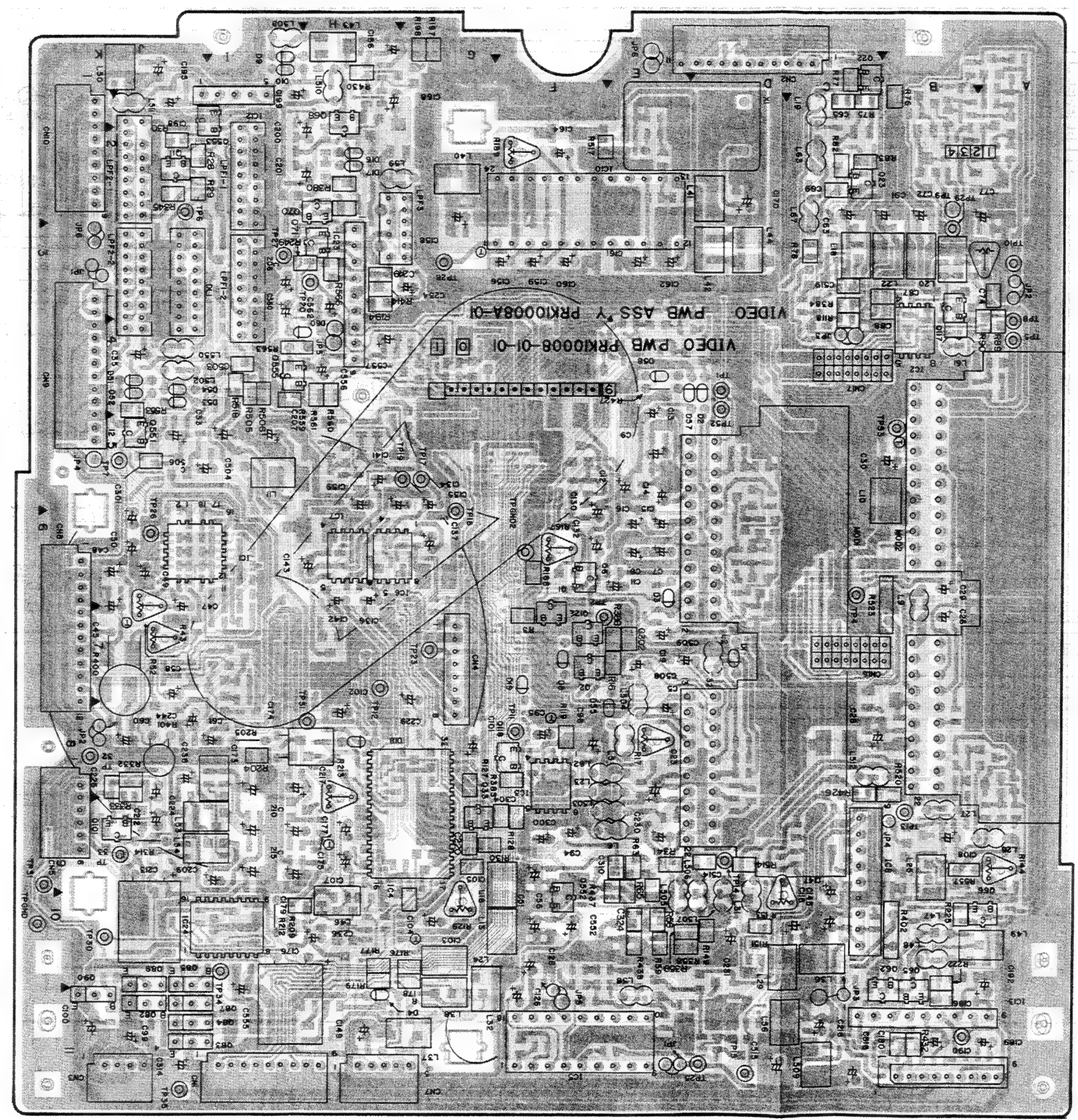
— MAIN WAVEFORMS OF VIDEO CIRCUIT —



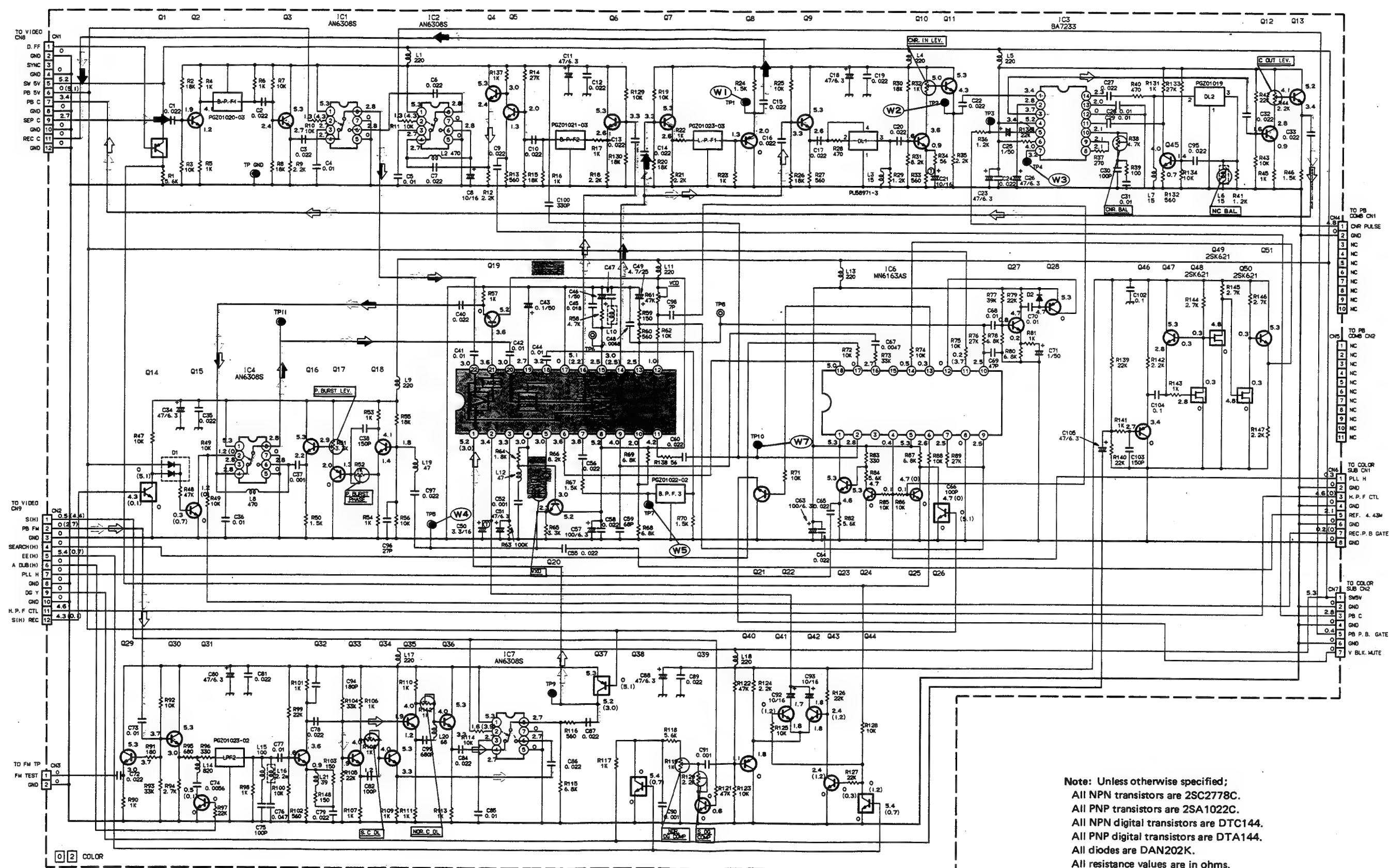
 W1 TP1 1.2 Vp-p [VHS REC]	 W2 TP2 1.2 Vp-p [EE]	 W2 TP2 1.1 Vp-p [PB]
 W3 TP4 1.1 Vp-p [EE]	 W4 TP5 1.2 Vp-p [S-VHS EE]	 W5 TP6 1.2 Vp-p [EE]
 W5 TP6 1.1 Vp-p [VHS PB]	 W6 TP7 0.4 Vp-p [EE]	 W6 TP7 0.4 Vp-p [S-VHS PB]
 W7 TP10 0.3 Vp-p [S-VHS EE]	 W7 TP10 0.3 Vp-p [VHS EE]	 W8 TP11 0.2 Vp-p [S-VHS PB]
 W8 TP11 0.2 Vp-p [VHS PB]	 W9 TP12 0.5 Vp-p [EE]	 W9 TP12 0.5 Vp-p [PB]

- Front -

<p>W10</p>  <p>TP15 0.4 Vp-p [S-VHS PB] 0.3 Vp-p [VHS PB]</p>	<p>W11</p>  <p>TP16 0.5 Vp-p [EE]</p>	<p>W12</p>  <p>TP17 0.5 Vp-p [PB]</p>
<p>W13</p>  <p>TP19 0.5 Vp-p [PB]</p>	<p>W14</p>  <p>TP20 0.6 Vp-p [PB]</p>	<p>W15</p>  <p>TP24 4.0 Vp-p [S-VHS EE] 3.2 Vp-p [VHS EE]</p>
<p>W16</p>  <p>TP25 0.5 Vp-p [PB]</p>	<p>W17</p>  <p>TP27 0.6 Vp-p [PB]</p>	<p>W18</p>  <p>TP28 0.5 Vp-p [PB]</p>
<p>W19</p>  <p>TP30 1.0 Vp-p (75-ohm termination) [EE]</p>	<p>W19</p>  <p>TP30 1.0 Vp-p (75-ohm termination) [PB]</p>	<p>W20</p>  <p>TP31 1.0 Vp-p (75-ohm termination) [EE]</p>
<p>W20</p>  <p>TP31 1.0 Vp-p (75-ohm termination) [PB]</p>	<p>W21</p>  <p>TP32 BURST LEVEL: 0.3 Vp-p (75-ohm termination) [EE]</p>	<p>W21</p>  <p>TP32 BURST LEVEL: 0.3 Vp-p (75-ohm termination) [PB]</p>
<p>W22</p>  <p>TP33 1.0 Vp-p (75-ohm termination) [EE]</p>	<p>W22</p>  <p>TP33 1.0 Vp-p (75-ohm termination) [PB]</p>	<p>W23</p>  <p>TP52 0.7 Vp-p [VHS EE]</p>
<p>W24</p>  <p>TP53 0.8 Vp-p [S-VHS EE]</p>		



4.12 COLOR SCHEMATIC DIAGRAM



Following symbols in schematic indicate circuit part according to mode.

S-VHS:

- RECORDING SIGNAL PATH
- PLAYBACK SIGNAL PATH
- REPLAY SIGNAL PATH

VHS:

- RECORDING SIGNAL PATH
- PLAYBACK SIGNAL PATH
- RECPLAY SIGNAL PATH

Note: Unless otherwise specified;
 All NPN transistors are 2SC2778C.
 All PNP transistors are 2SA1022C.
 All NPN digital transistors are DTC144.
 All PNP digital transistors are DTA144.
 All diodes are DAN202K.
 All resistance values are in ohms.
 All inductance values are in μ H.
 All capacitance values are in μ F.
 ± Electrolytic
 ☐ Ceramic

5

4

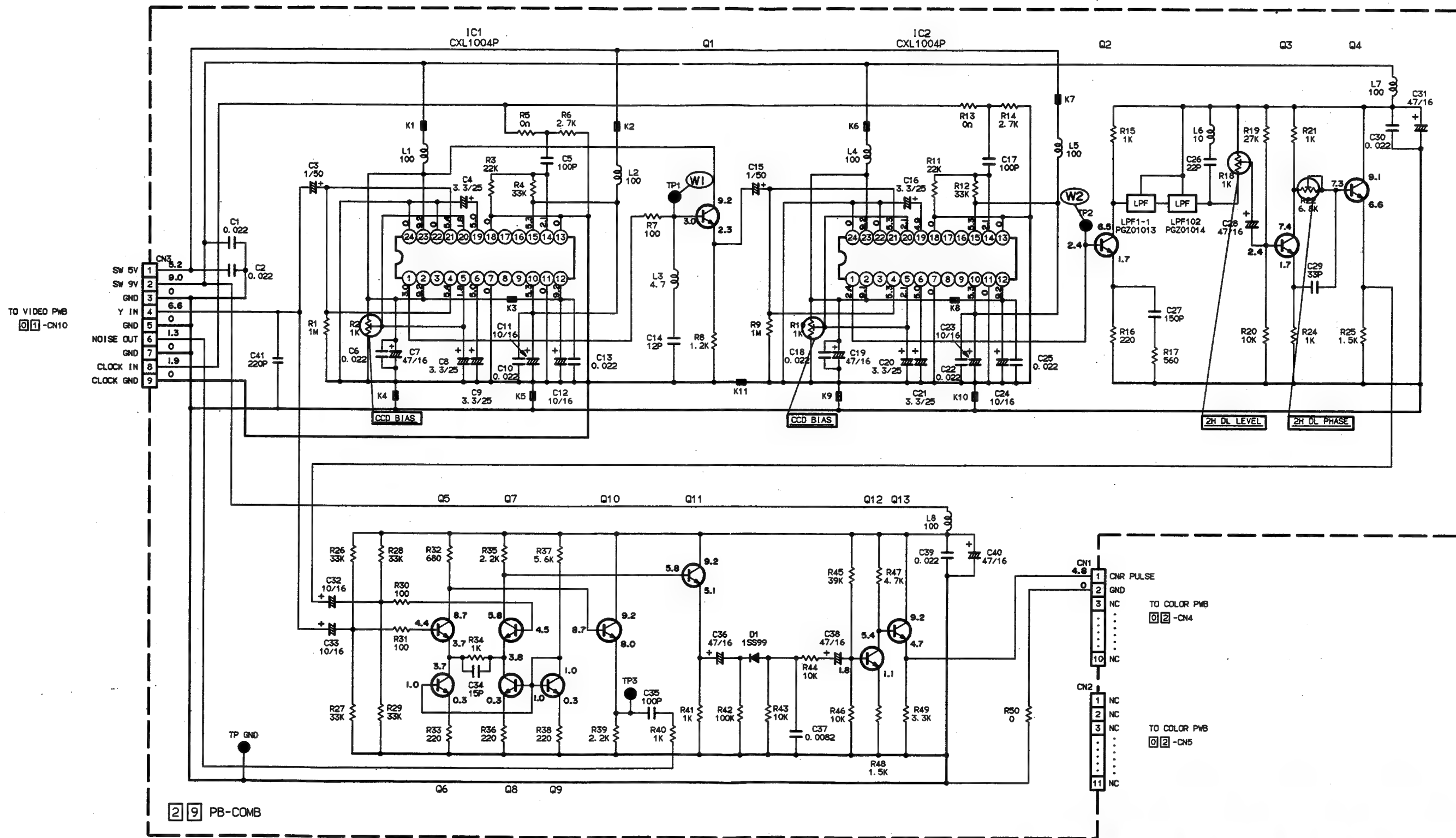
3



1

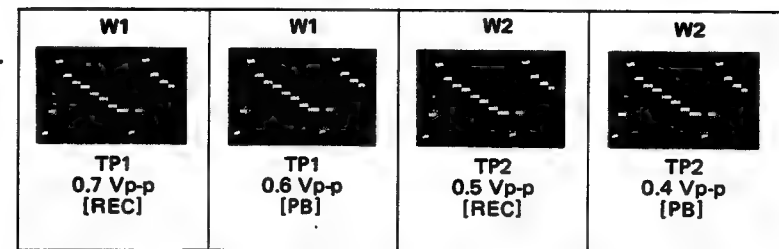


4.14 PB COMB SCHEMATIC DIAGRAM



- NOTES: 1. All resistance values are in ohms. (1/8 W)
2. All inductance values are in μ H.
3. All capacitance values are in μ F.
4. NPN type transistors are 2SC2778C.
5. DC voltages measured with DVM in S-VHS mode.
Parentheses () indicate play-back voltage then this differs from recording.

— MAIN WAVEFORMS OF PB COMB
CIRCUIT —

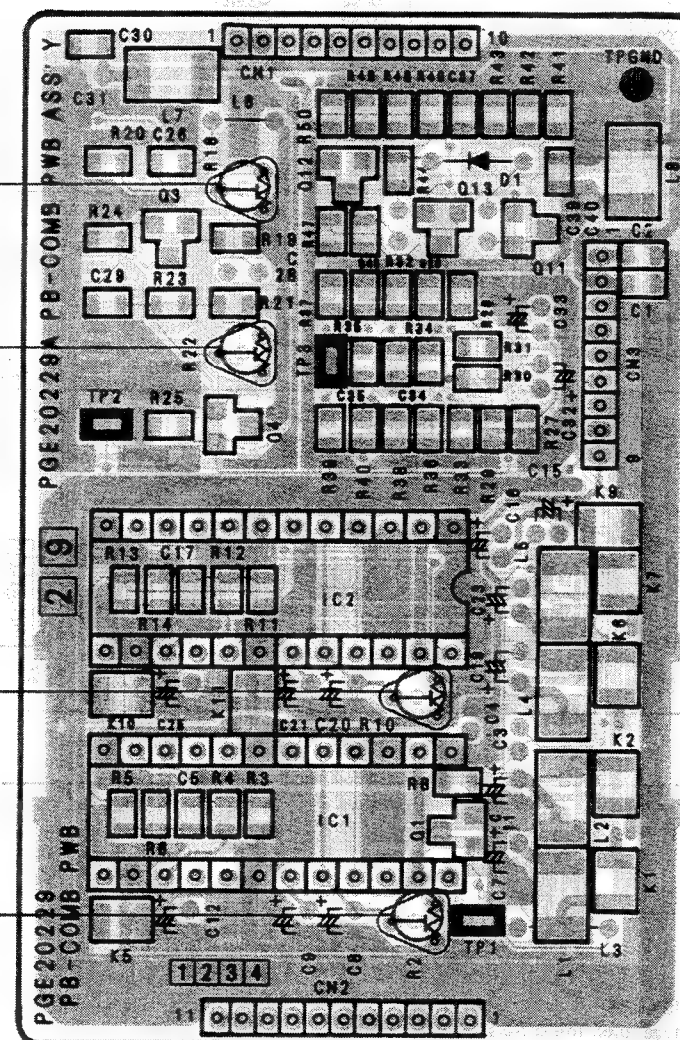
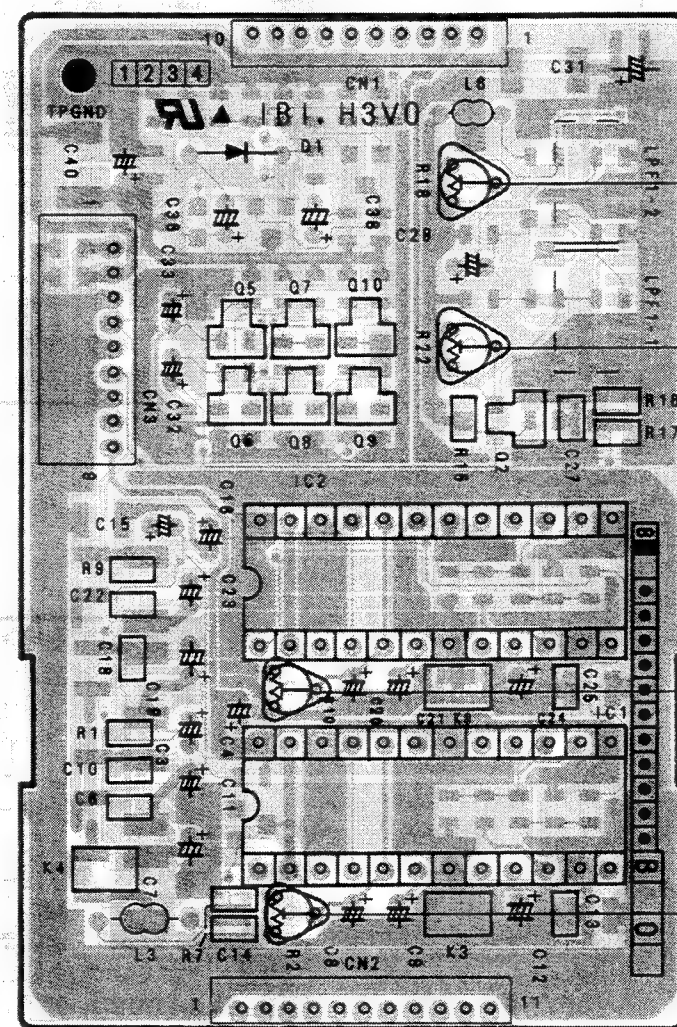


4.15 PB COMB CIRCUIT BOARDS

— PB COMB —

— Parts side —

— Pattern side —



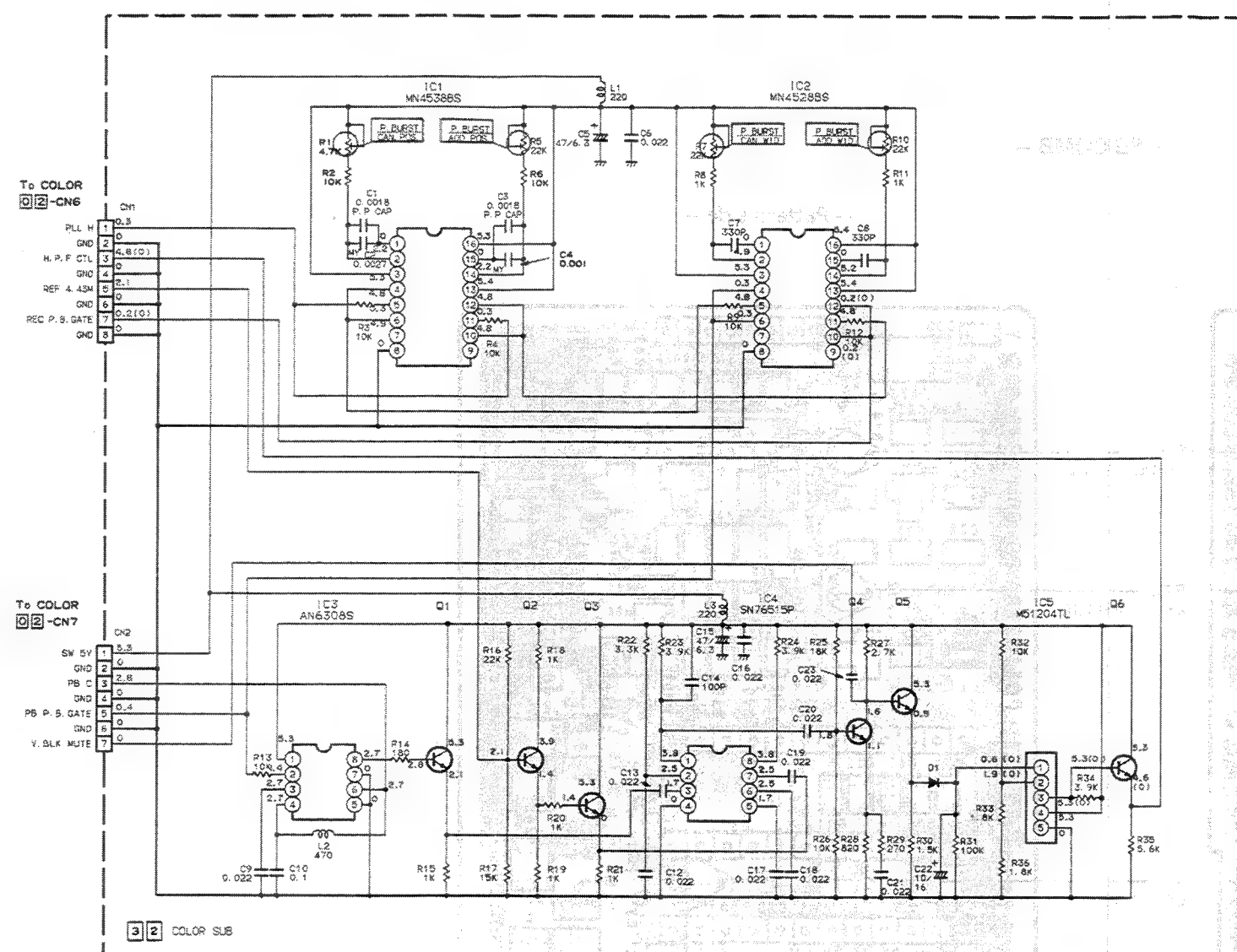
R18 _____
2H DL LEVEL

R22
2H DL PHASE

—RIO—
CCD BIAS

— R2 —
CCD BIAS

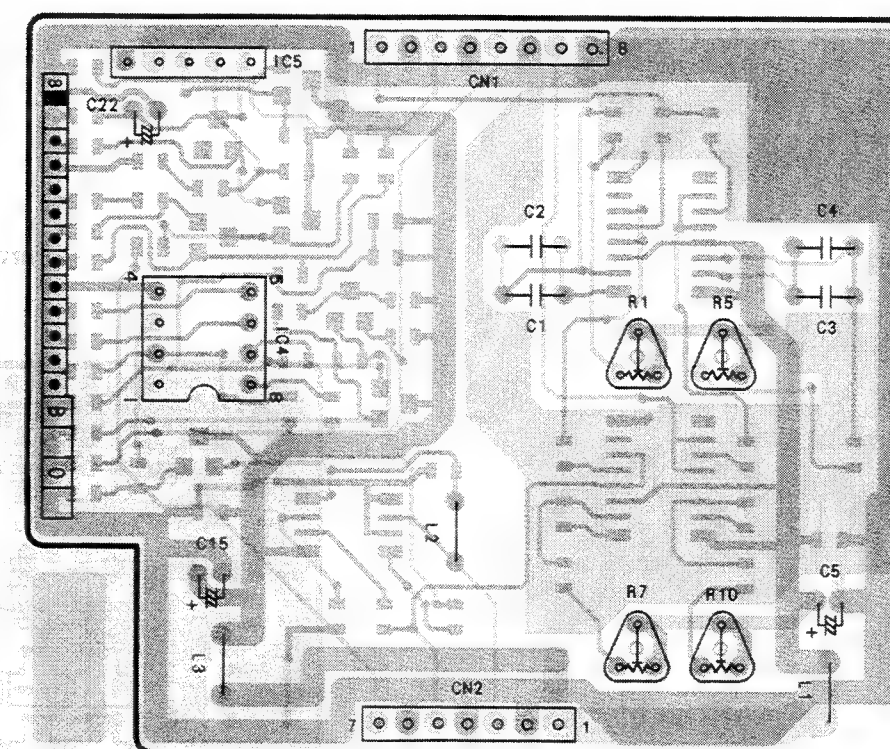
4.16 COLOR SUB SCHEMATIC DIAGRAM



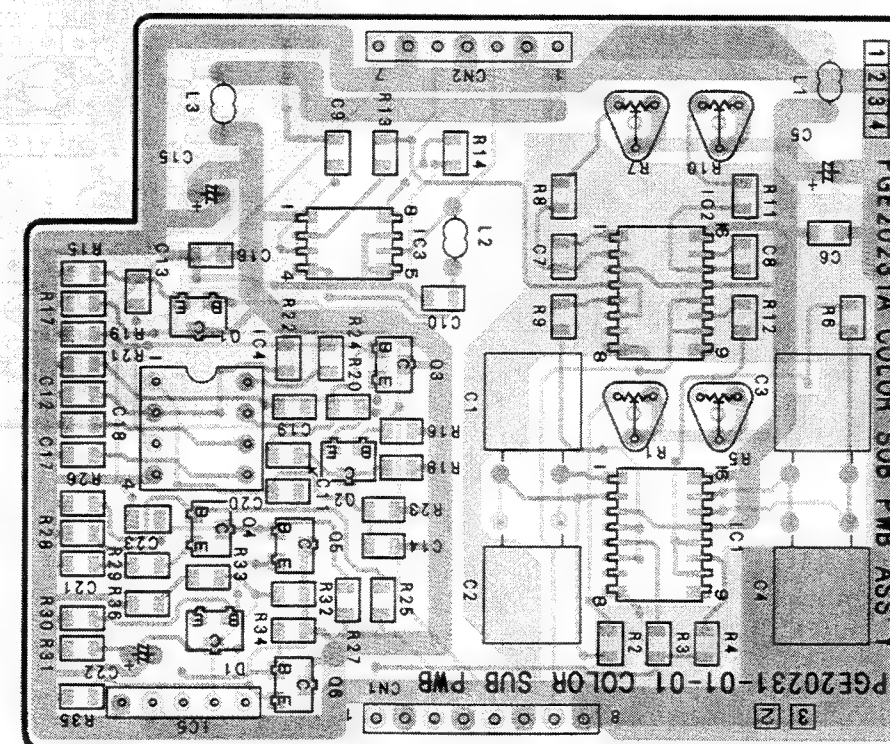
- NOTES: 1. All resistance values are in ohms. (1/8 W)
 2. All inductance values are in μ H.
 3. All capacitance values are in μ F.
 4. NPN type transistors are 2SC2778C.
 5. All diodes are DA204K.
 6. DC voltages measured with DVM in S-VHS mode.
 Parentheses () indicate play-back voltage then this differs from recording.

4.17 COLOR SUB CIRCUIT BOARD

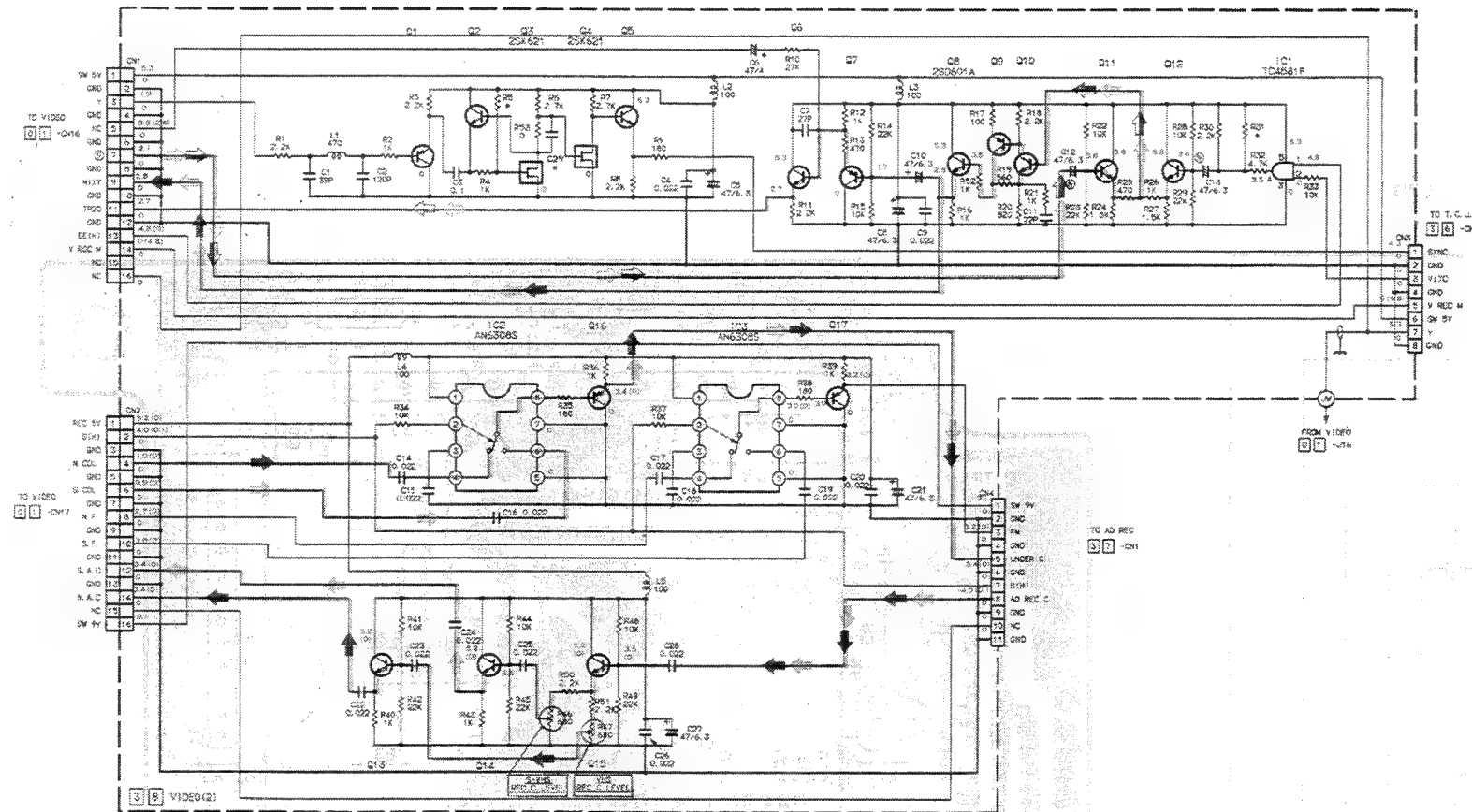
— Pattern side —



— Parts side —



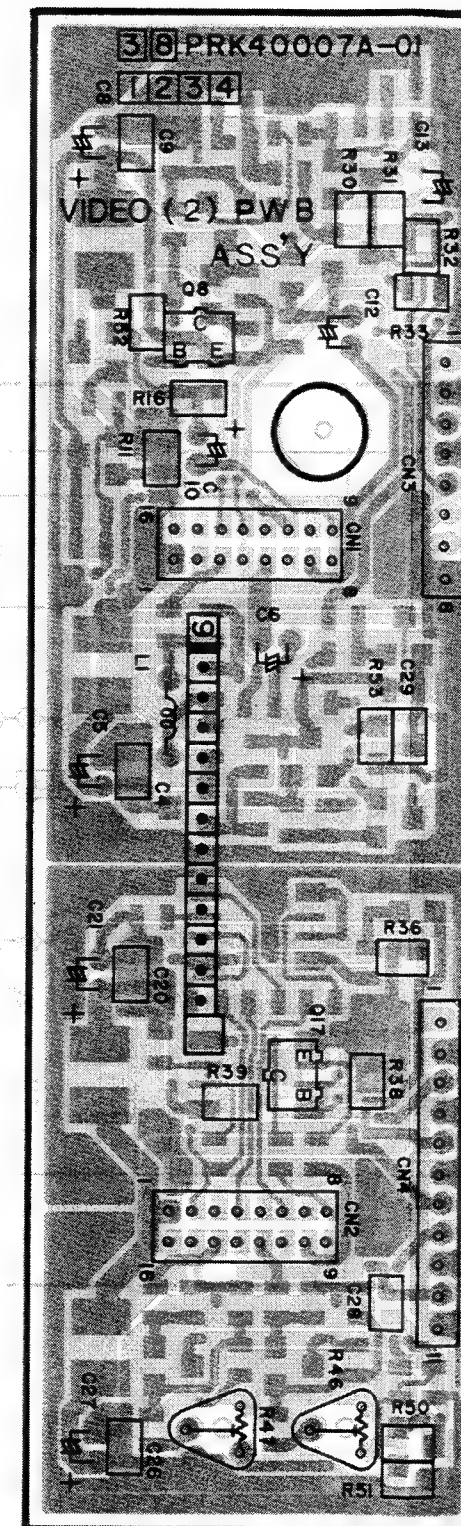
4.18 VIDEO (2) SCHEMATIC DIAGRAM



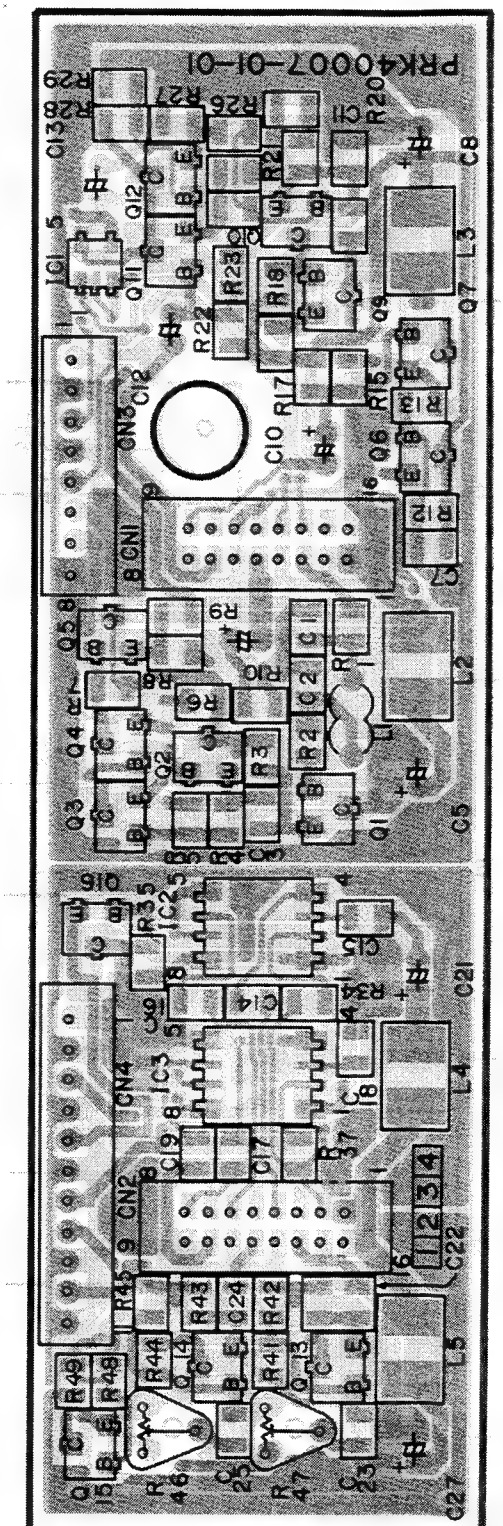
Note: Unless otherwise specified;
 All NPN transistors are 2N2778C.
 All PNP transistors are 2N2801A.
 All resistance values are in ohms, 1/10W
 All inductance values are in μ H.
 All capacitance values are in μ F.
 —E— Electrolytic
 —C— Ceramic
 ... is no part

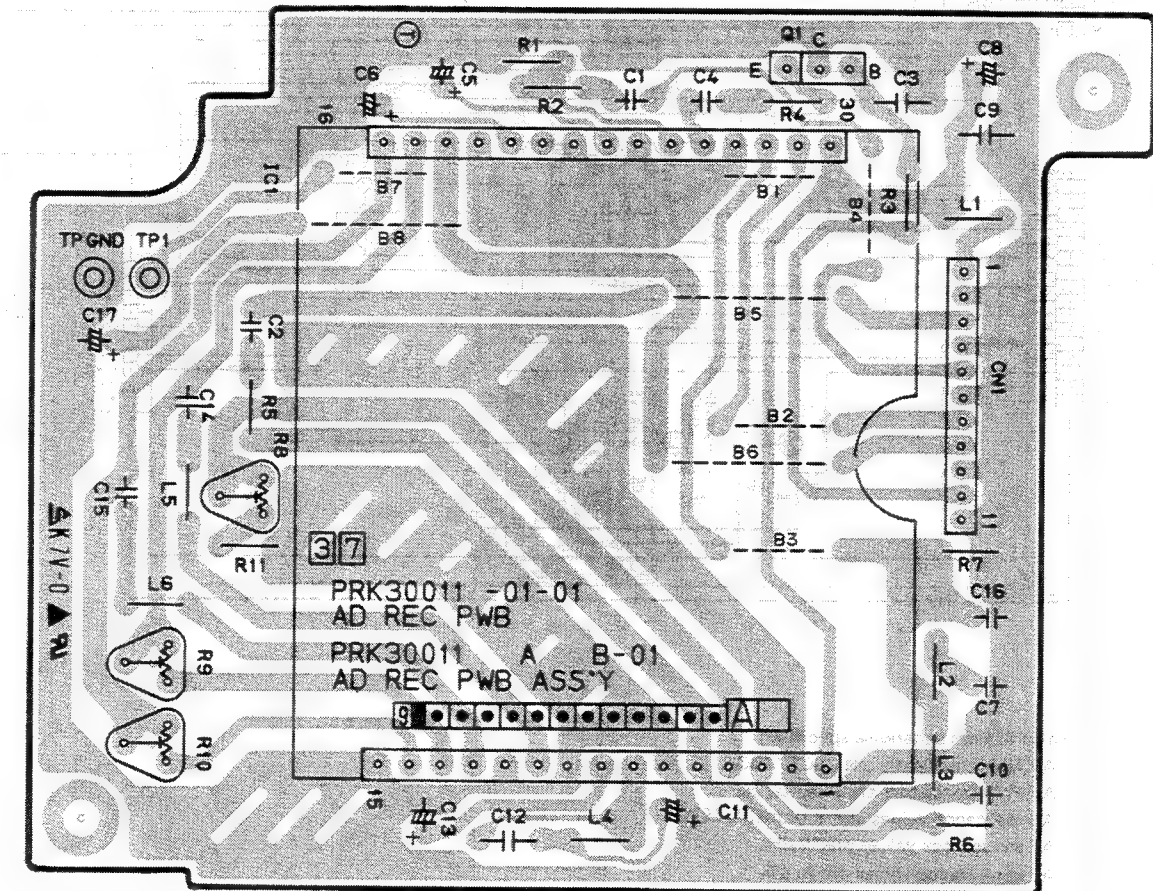
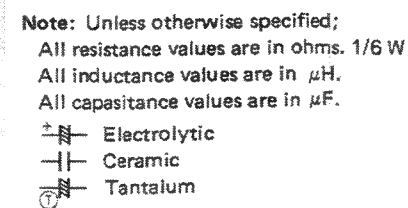
4.19 VIDEO (2) CIRCUIT BOARD

— Pattern side —

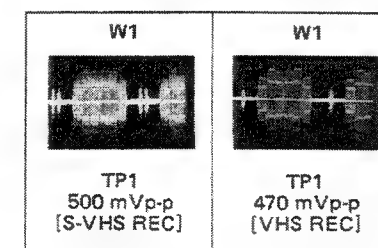


— Parts side —

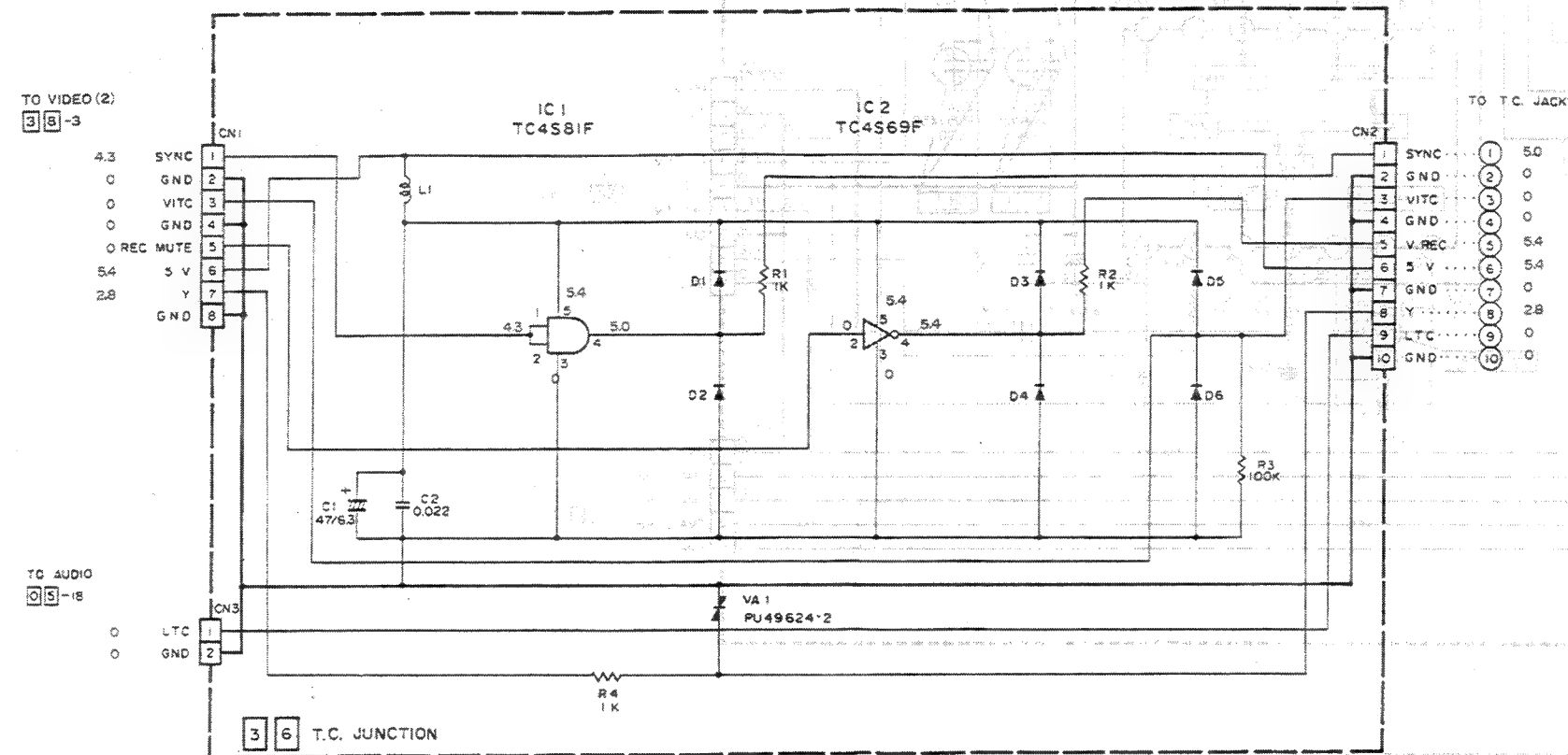




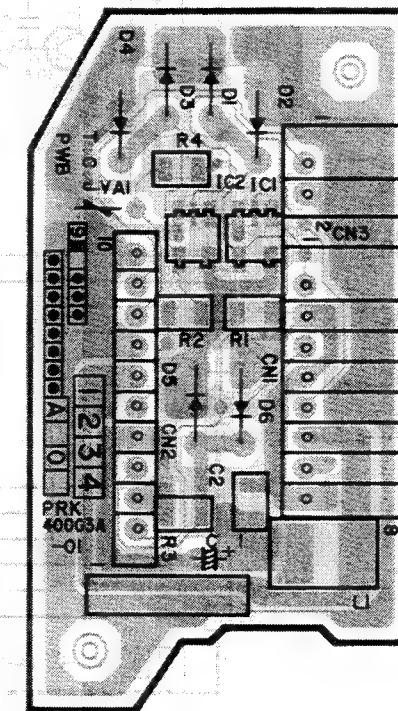
— MAIN WAVEFORMS OF AD REC CIRCUIT —



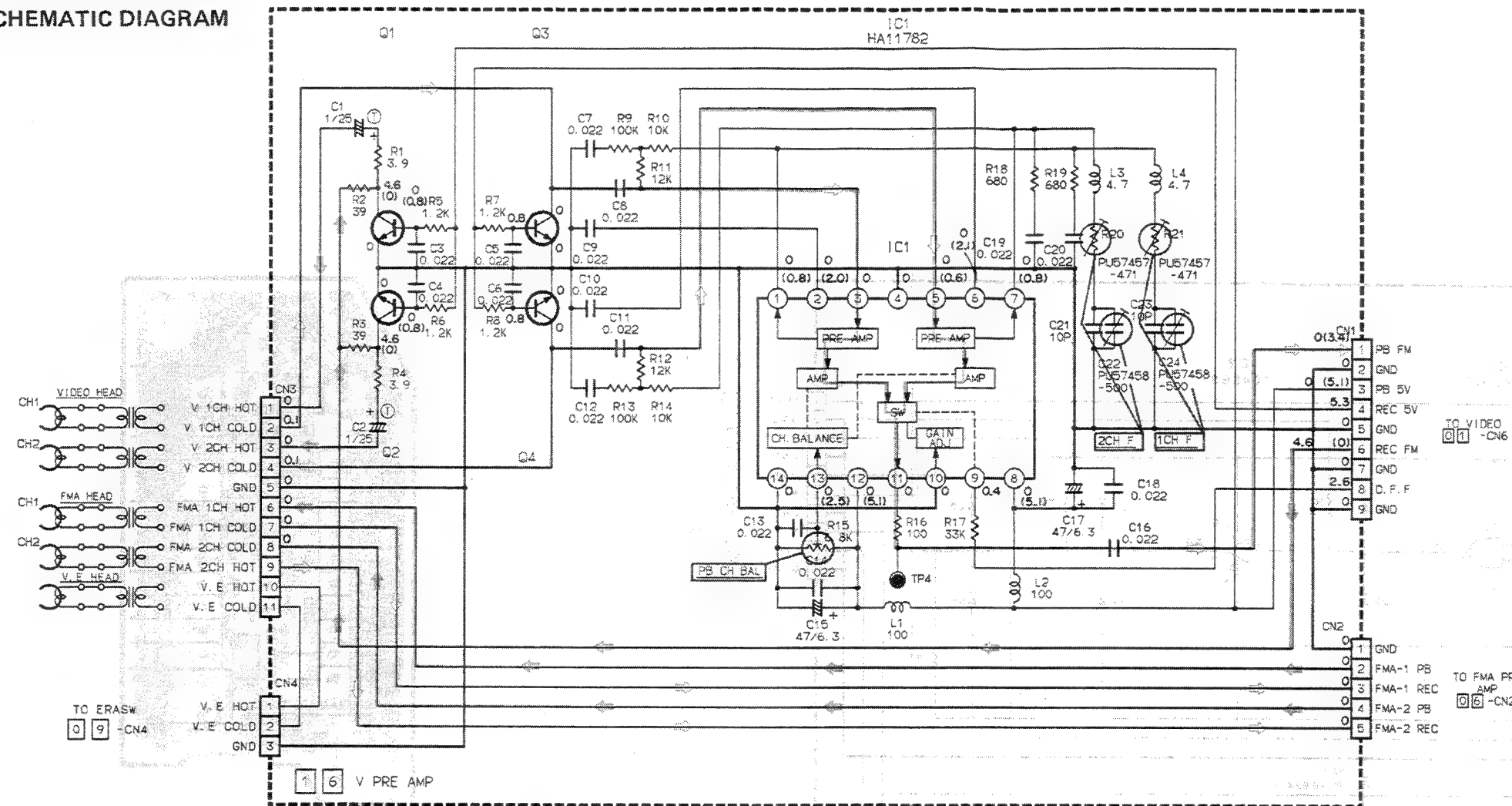
4.22 VITC JUNC SCHEMATIC DIAGRAM



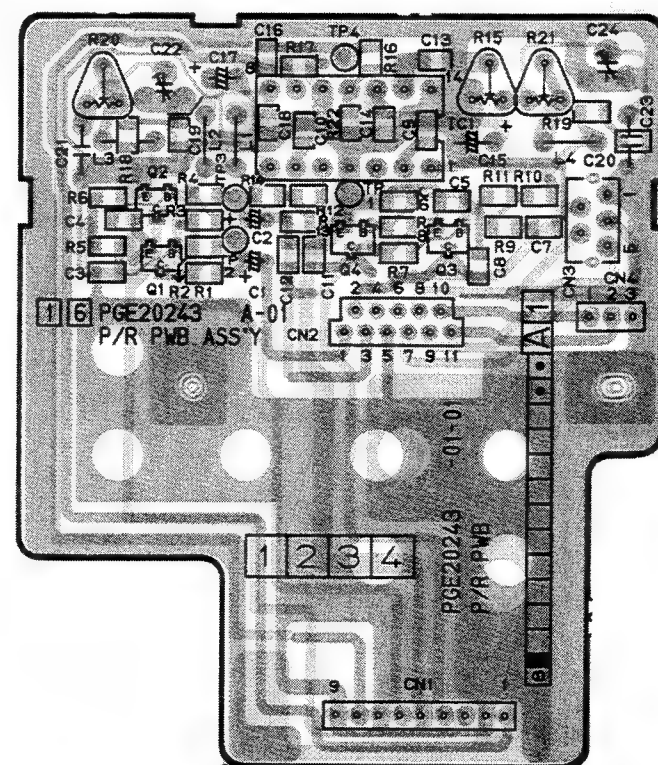
4.23 VITC JUNC CIRCUIT BOARD



4.24 VIDEO PREAMP SCHEMATIC DIAGRAM

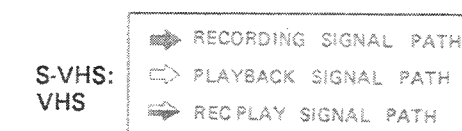


4.25 VIDEO PREAMP CIRCUIT BOARD

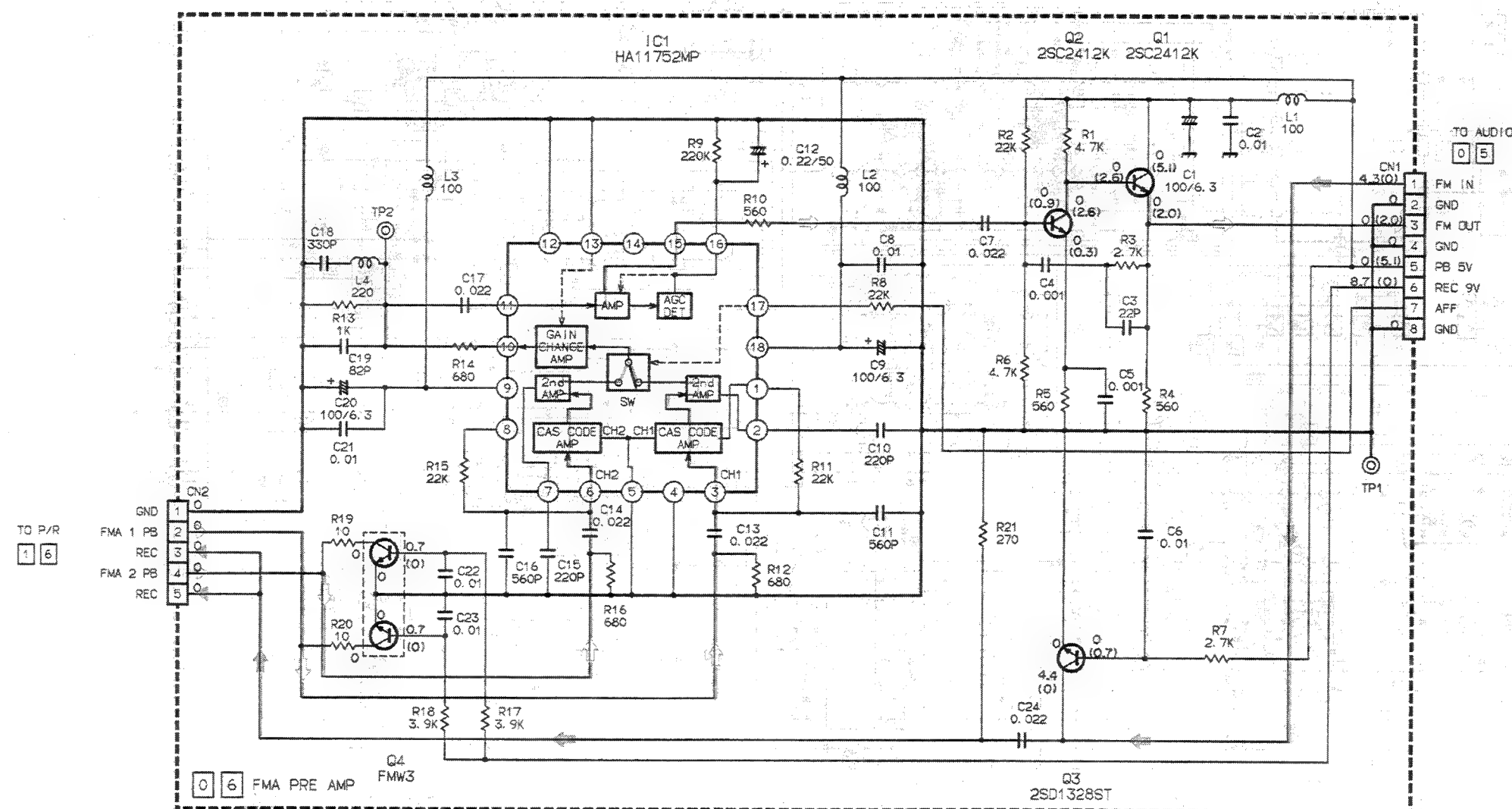


- NOTES: 1. All resistance values are in ohms. (1/8 W)
 2. All inductance values are in μ H.
 3. All capacitance values are in μ F.
 4. NPN type transistors are 2SC2978C.
 5. DC voltages measured with DVM in S-VHS mode.
 Parentheses () indicate play-back voltage then this differs from recording.

Following symbols in schematic indicate circuit part accrdng to mode.



4.26 FMA PREAMP SCHEMATIC DIAGRAM



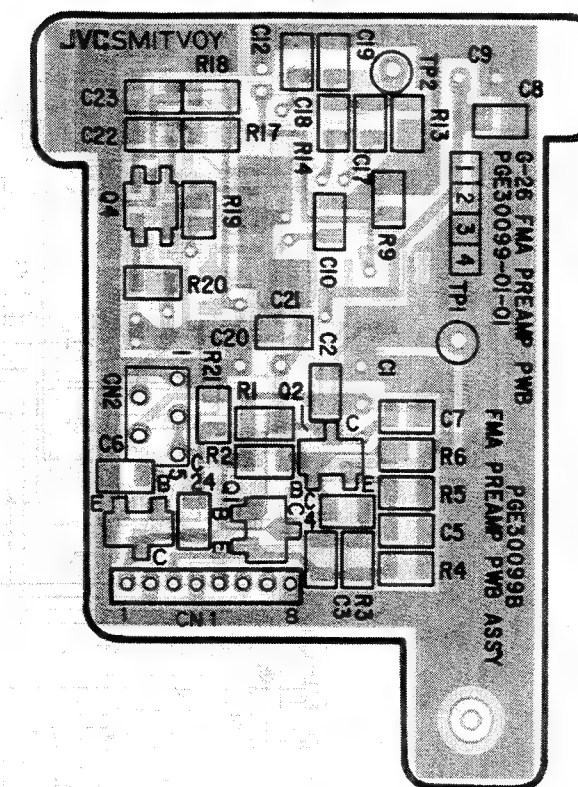
- NOTES:
1. All resistance values are in ohms. (1/8 W)
 2. All inductance values are in μ H.
 3. All capacitance values are in μ F.
 4. DC voltages measured with DVM in S-VHS mode. Parentheses () indicate play-back voltage then this differs from recording.

Following symbols in schematic indicate circuit path according to mode.



4.27 FMA PREAMP CIRCUIT BOARD

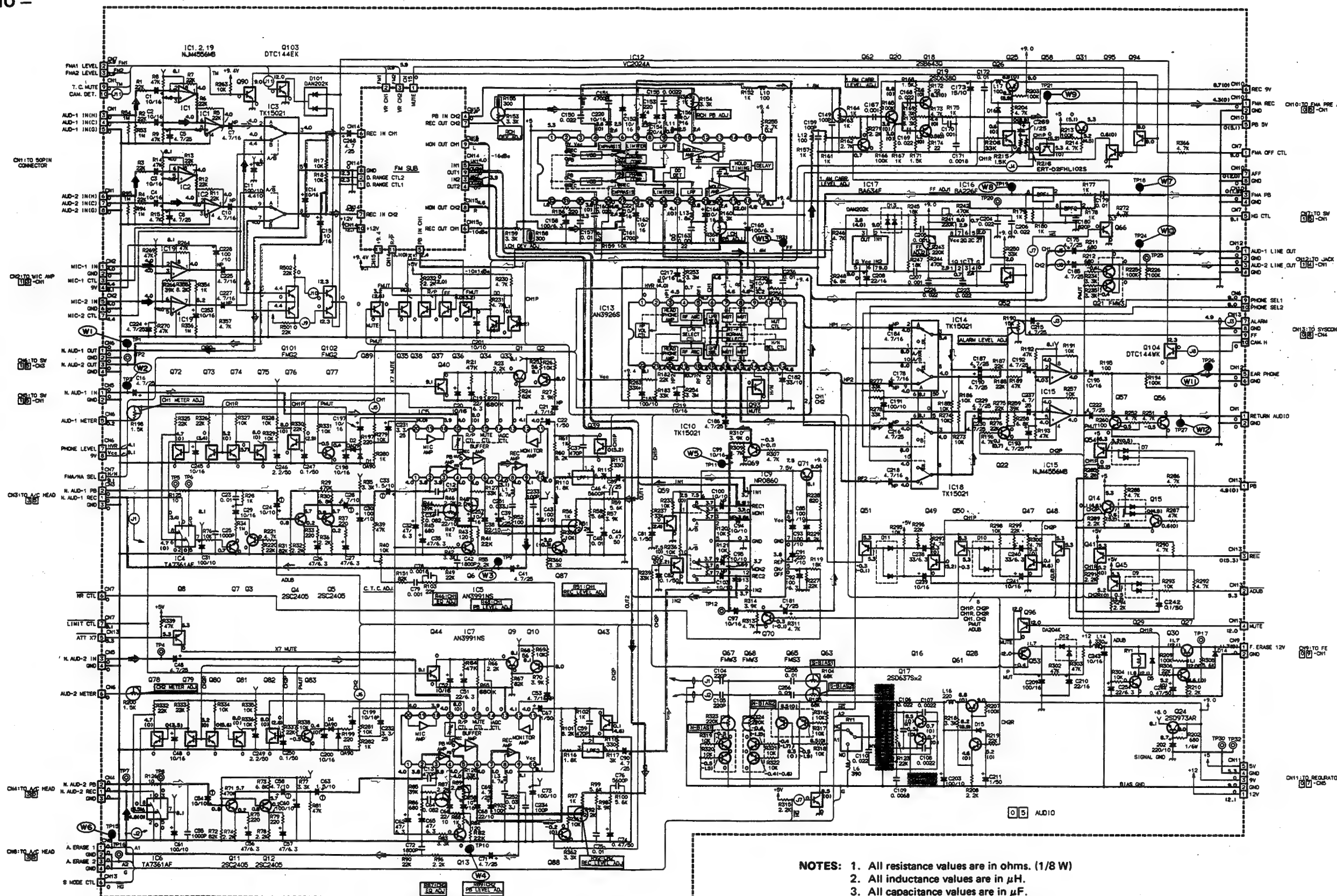
— Pattern side —



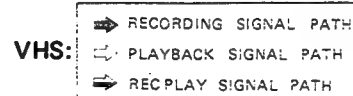
6

4.28 AUDIO/FM SUB SCHEMATIC DIAGRAM

- AUDIO -



Following symbols in schematic indicate circuit path according to mode.



- NOTES:
1. All resistance values are in ohms. (1/8 W)
 2. All inductance values are in μH .
 3. All capacitance values are in μF .
 4. NPN type transistors are DTC124EK.
 5. PNP type transistors are DTA124EK.
 6. NPN type transistors are 2SD601.
 7. PNP type transistors are 2SA1037K.
 8. All diodes are DAP202K.
 9. DC voltages measured with DVM in S-VHS mode. Parentheses () indicate play-back voltage then this differs from recording.
 10. Shaded () parts are critical for safety. Replace only with specified part numbers.

A

B

C

4-24

4-24

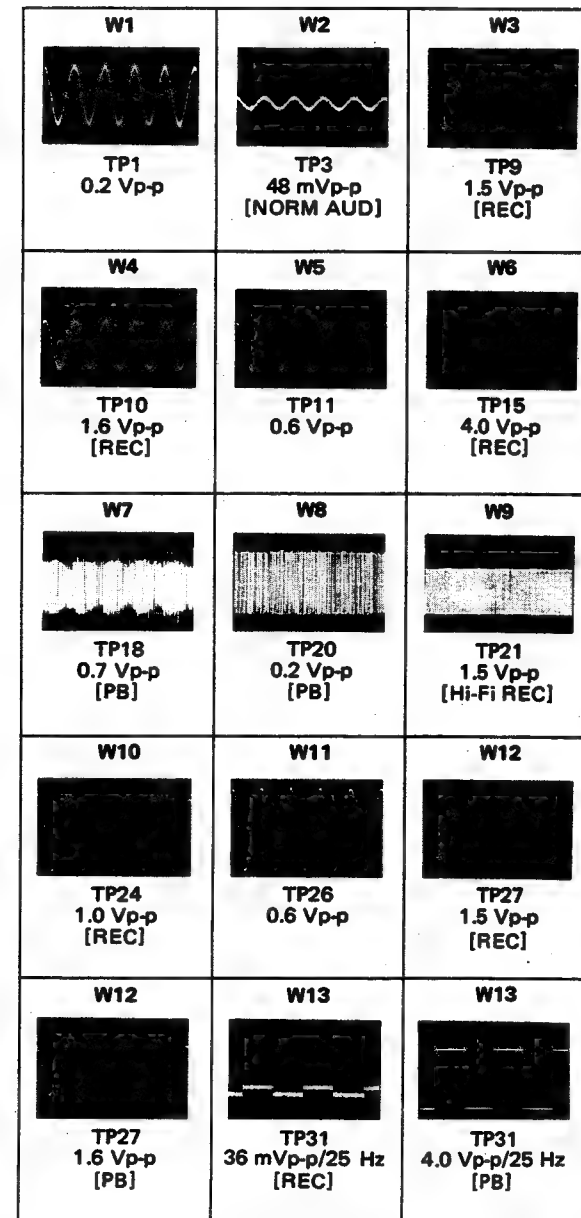
E

F

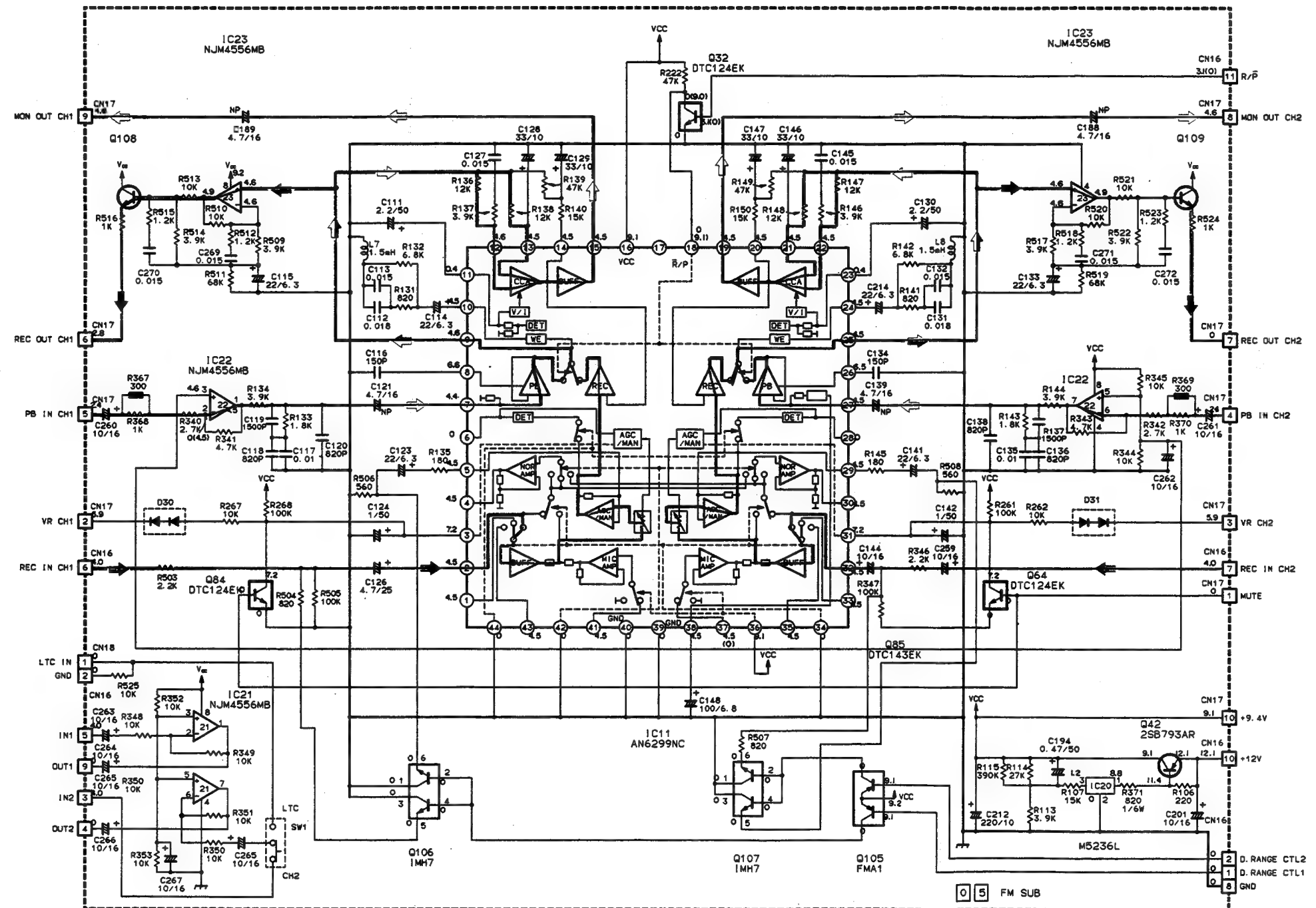
G

H

— MAIN WAVEFORMS OF AUDIO CIRCUIT —

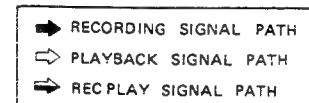


— FM SUB —

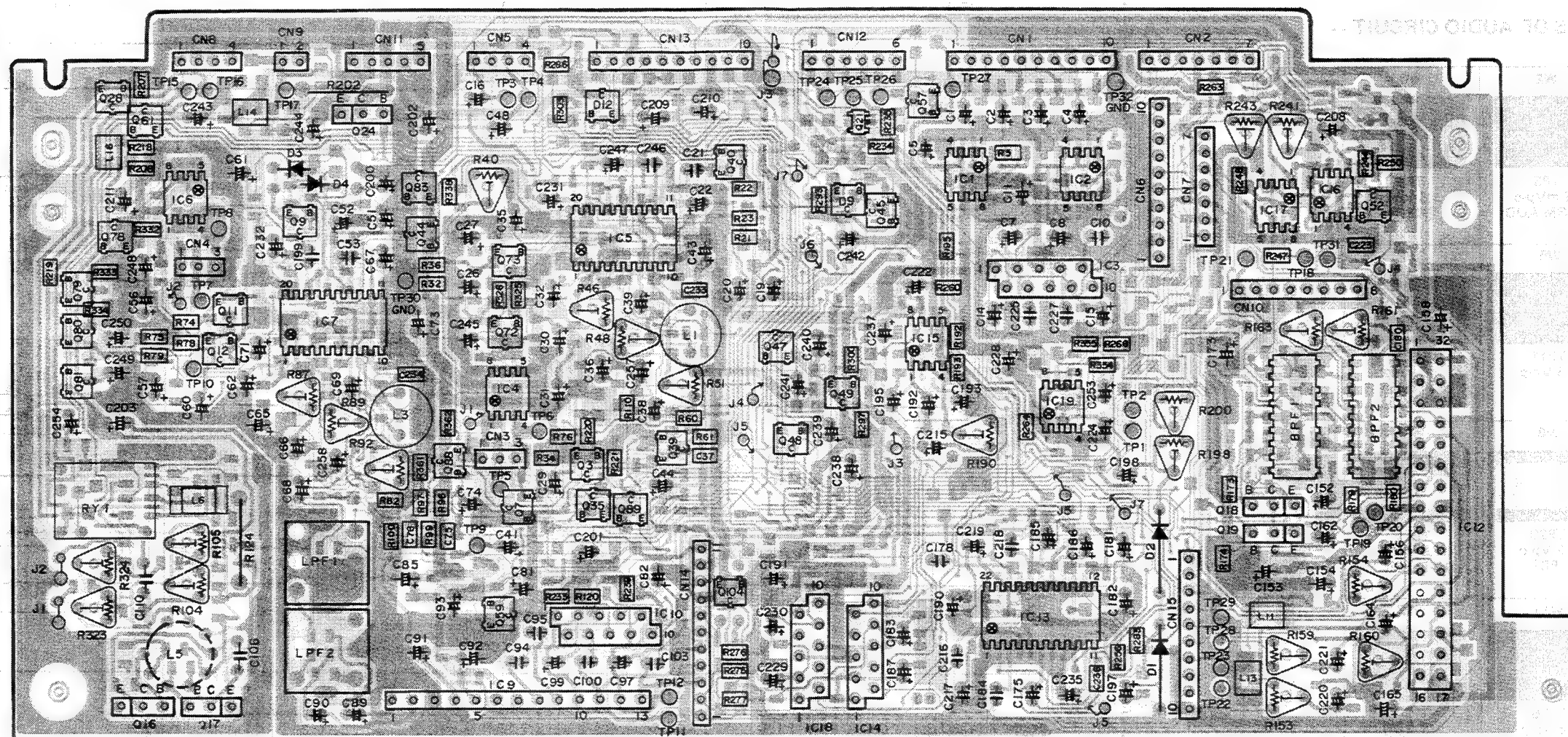


- NOTES: 1. All resistance values are in ohms. (1/8 W)
 2. All inductance values are in μ H.
 3. All capacitance values are in μ F.
 4. All diodes are DA204K.
 5. DC voltages measured with DVM in S-VHS mode.
 Parentheses () indicate play-back voltage then this differs from recording.

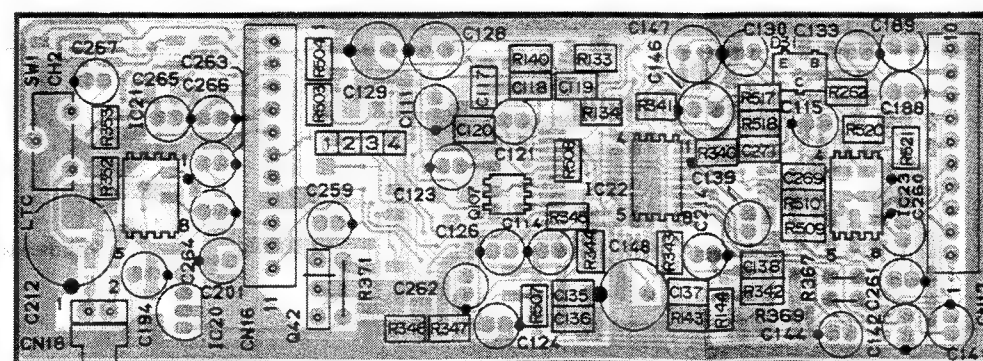
Following symbols in schematic indicate circuit part according to mode.



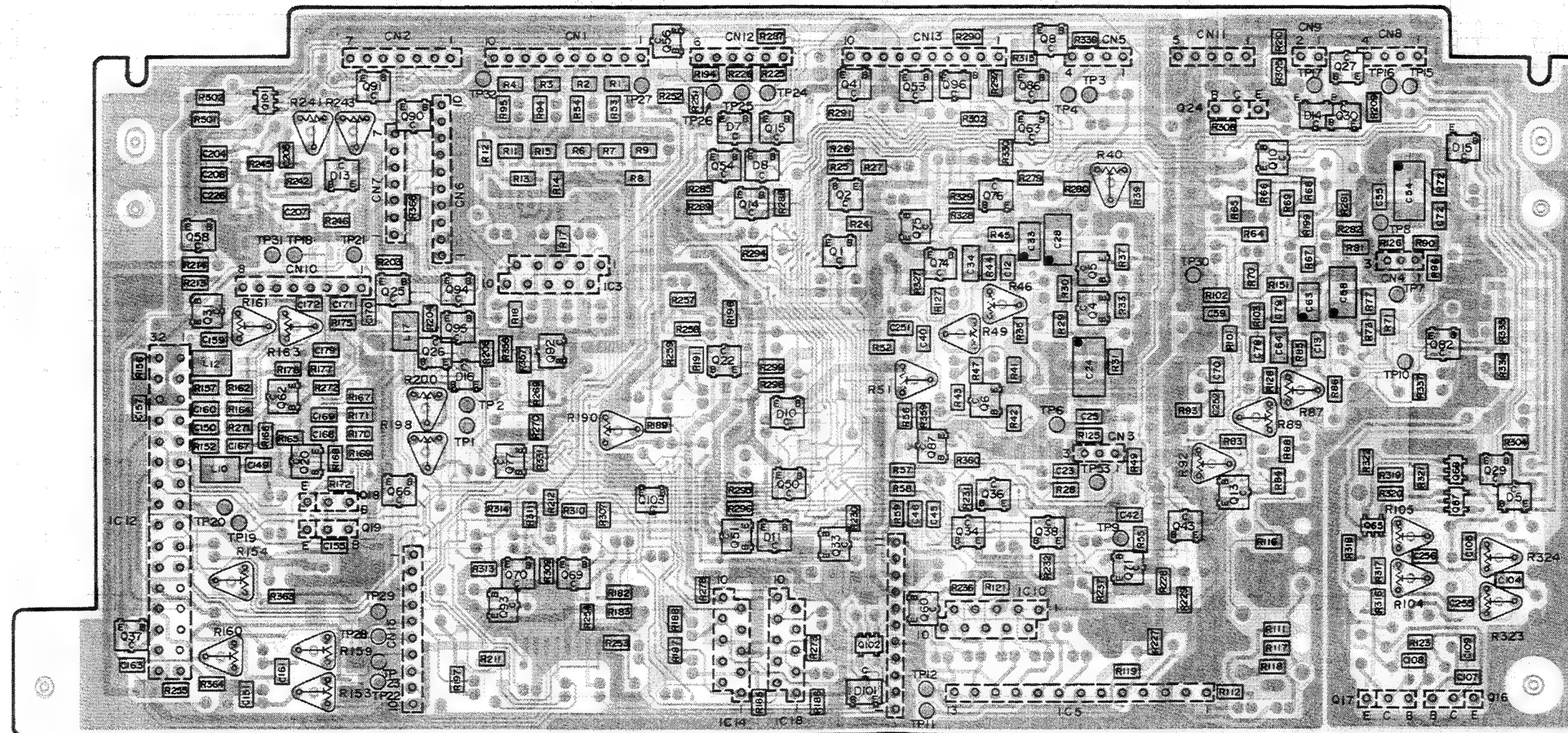
— Front —



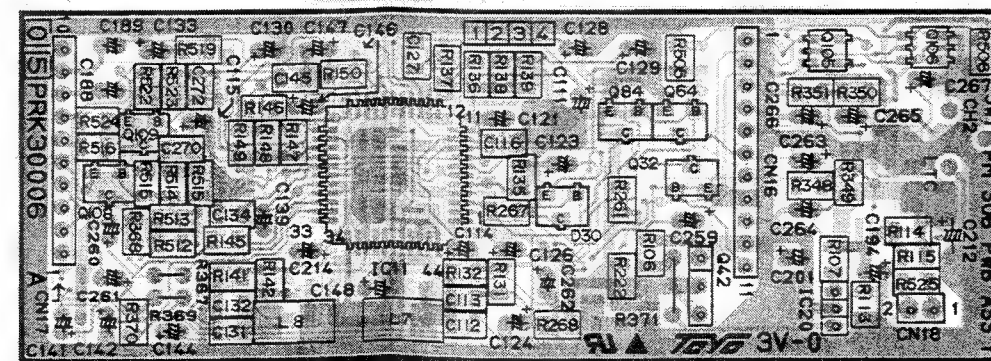
— Front —



- AUDIO -
- Rear -



- FM SUB -
- Rear -



6



3

2

1

A

B

C

4-28

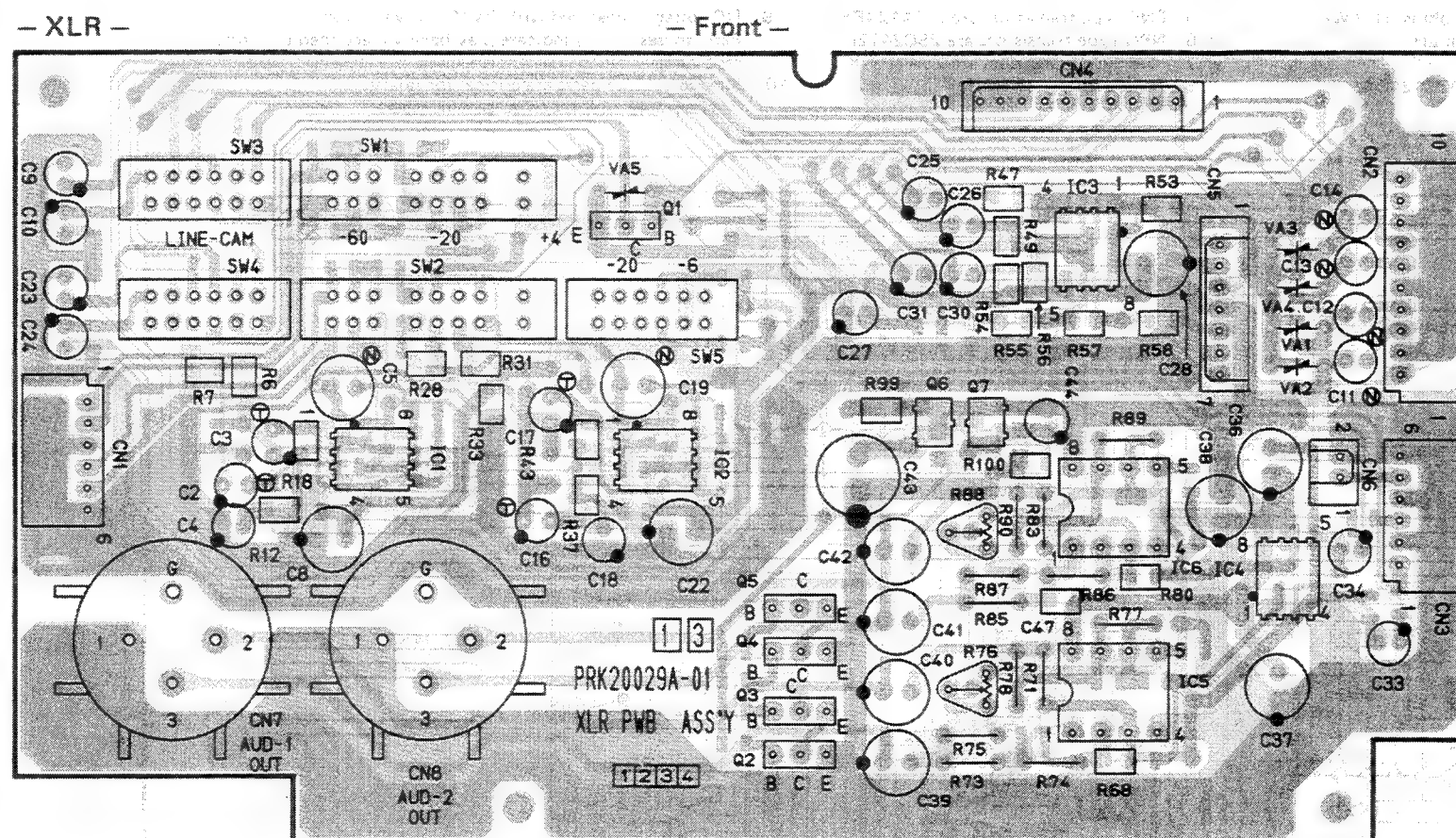
4-28

E

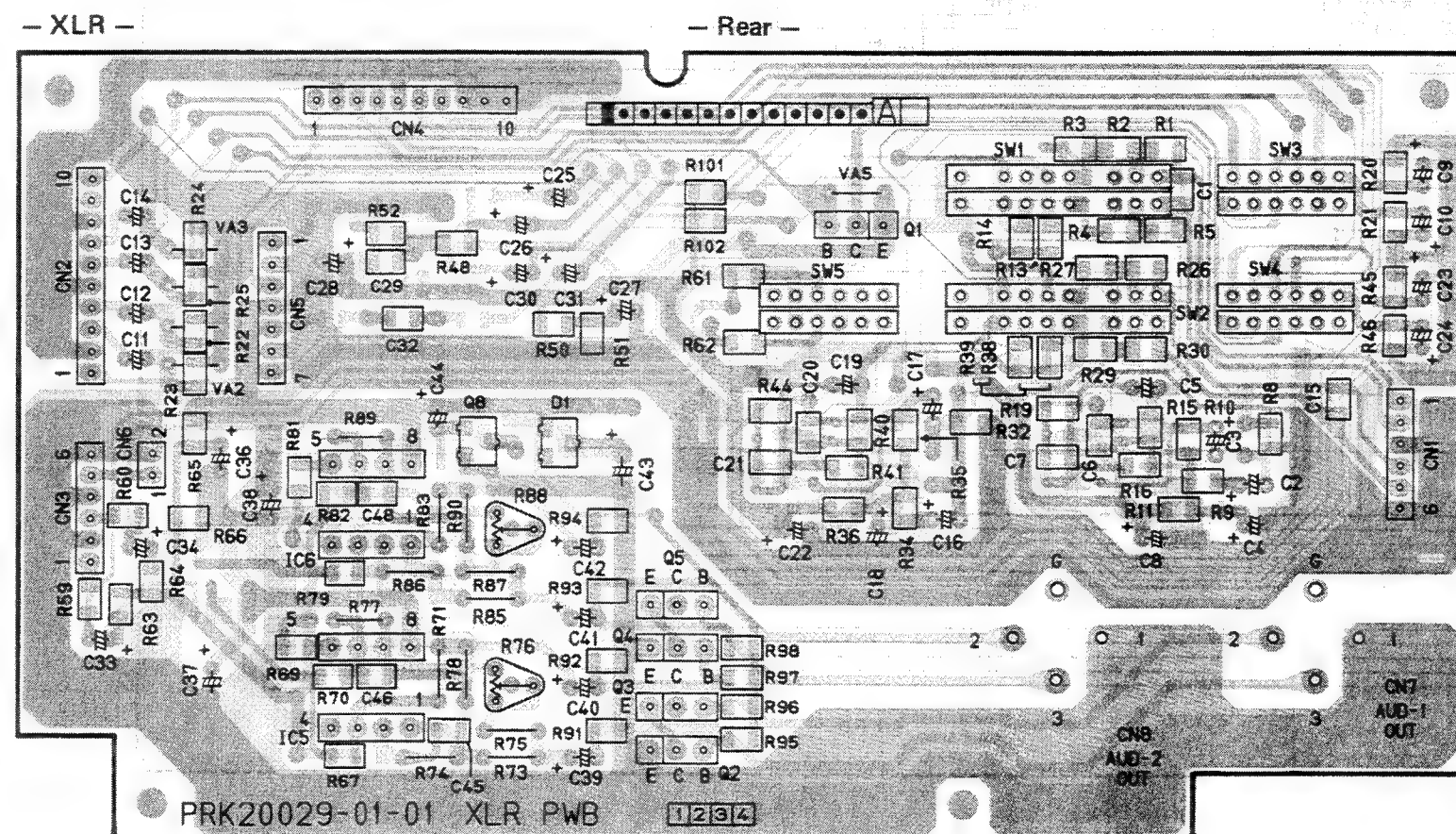
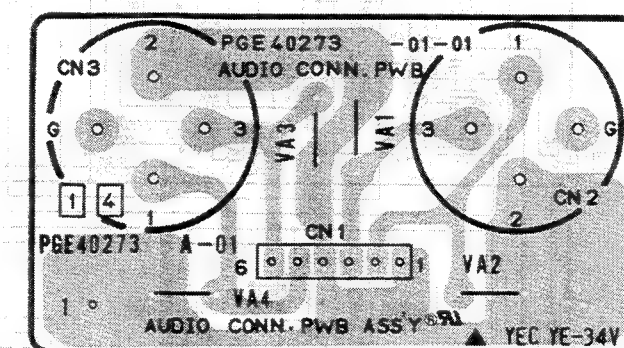
F

G

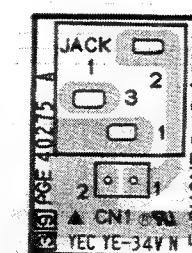
4.31 XLR/AUDIO CONNECTOR CIRCUIT BOARD



— AUDIO CONNECTOR —



— EARPHONE —

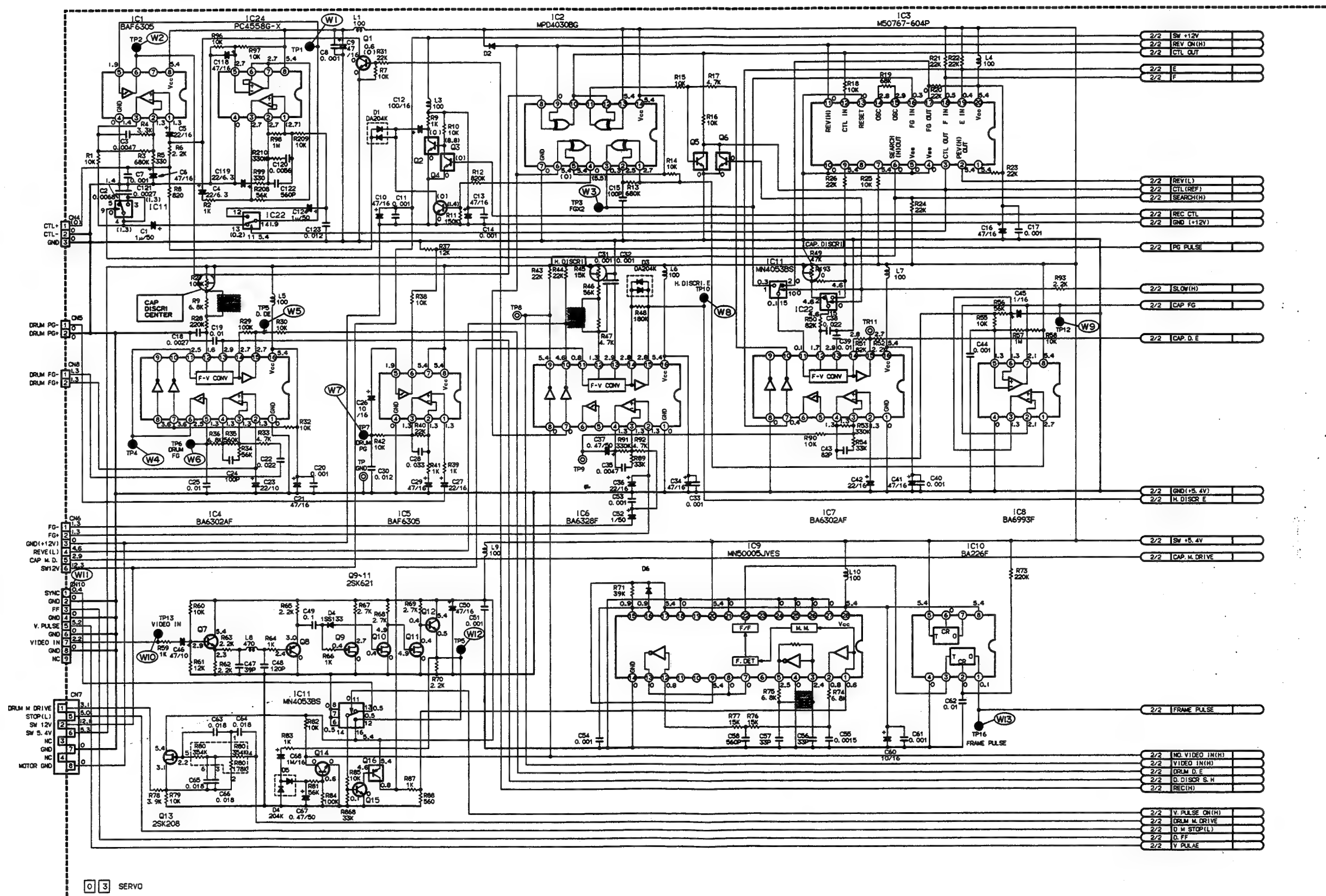


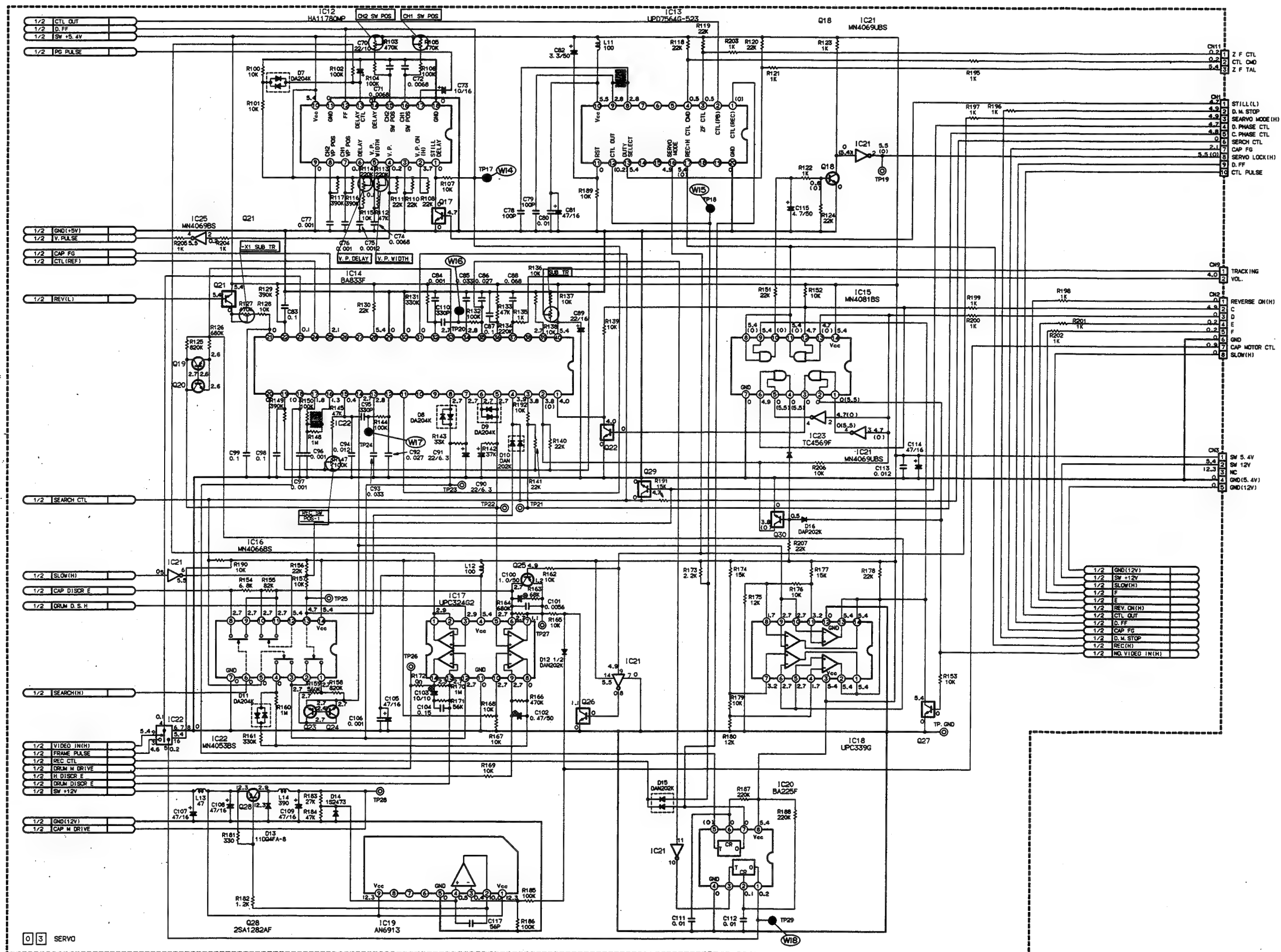
4.32 SERVO SCHEMATIC DIAGRAM

NOTES: 1. All resistance values are in ohms. (1/8 W)
2. All inductance values are in μ H.
3. All capacitance values are in μ F.
4. NPN type transistors are DTC124EK.

5. PNP type transistors are DTA124EK.
6. NPN type transistors are 2SC2412K.
7. PNP type transistors are 2SA1037K.
8. All diodes are 1SS133.

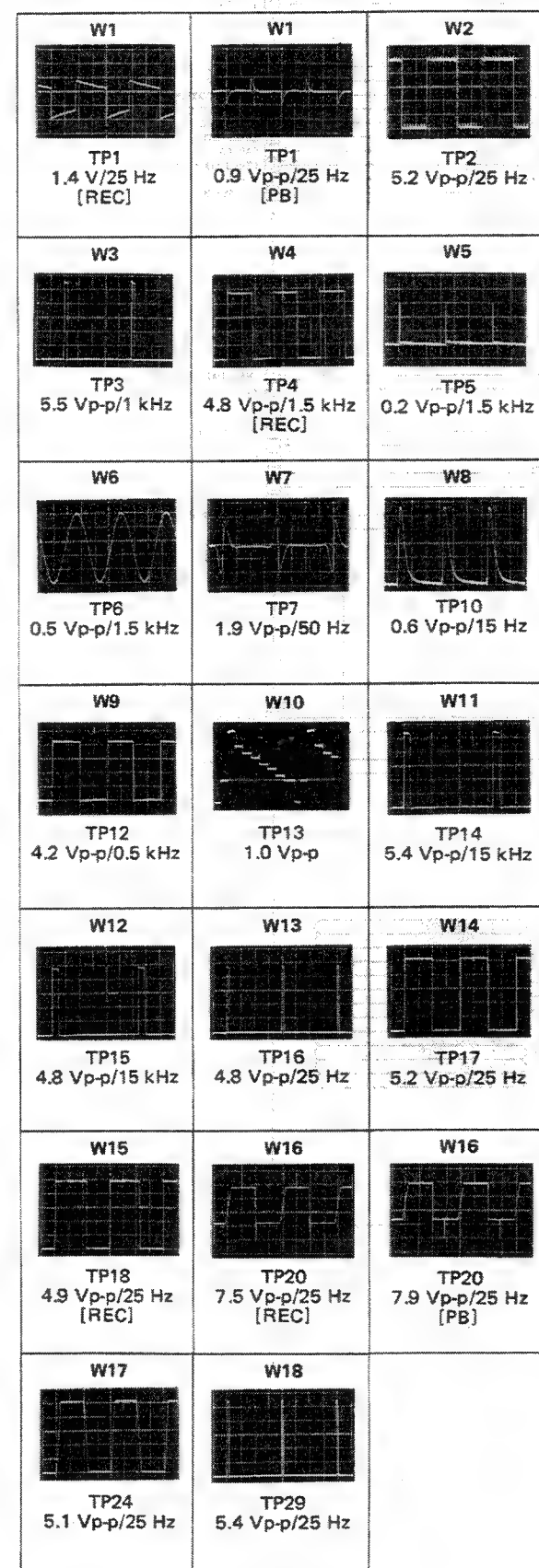
9. DC voltages measured with DVM in S-VHS mode. Parentheses () indicate play-back voltage then this differs from recording.
10. Shaded () parts are critical for safety. Replace only with specified part numbers.



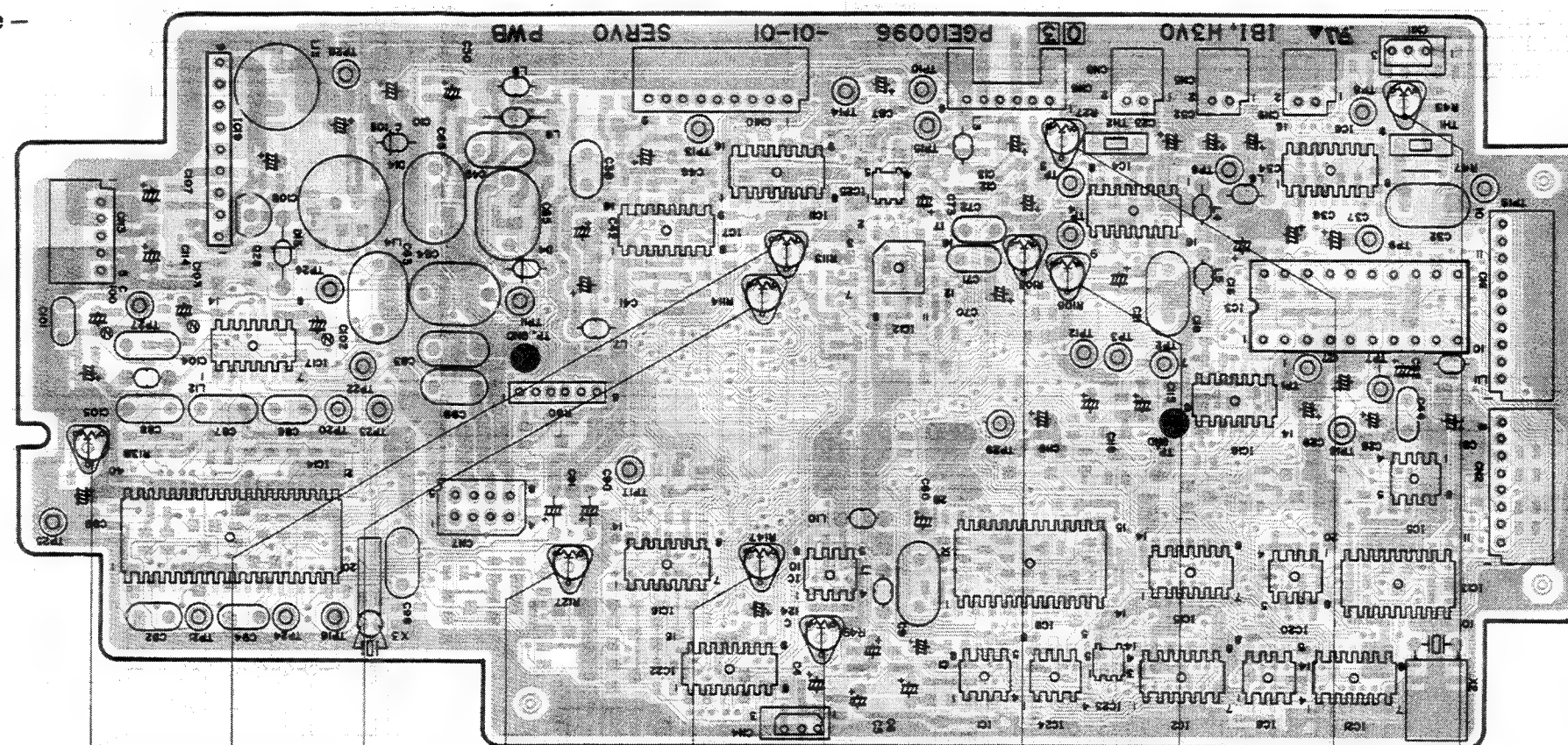


4.33 SERVO CIRCUIT BOARD

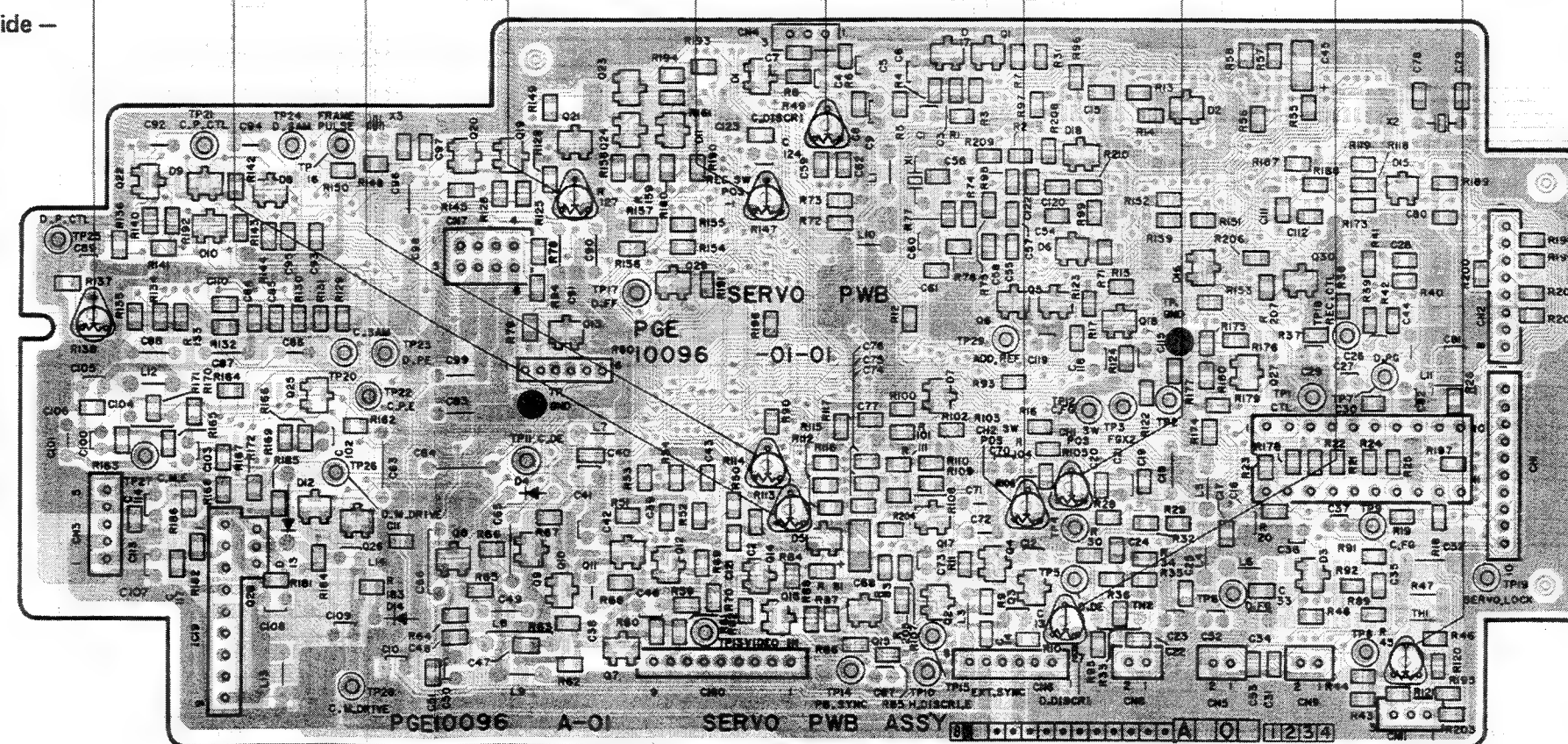
— MAIN WAVEFORMS OF SERVO CIRCUIT —



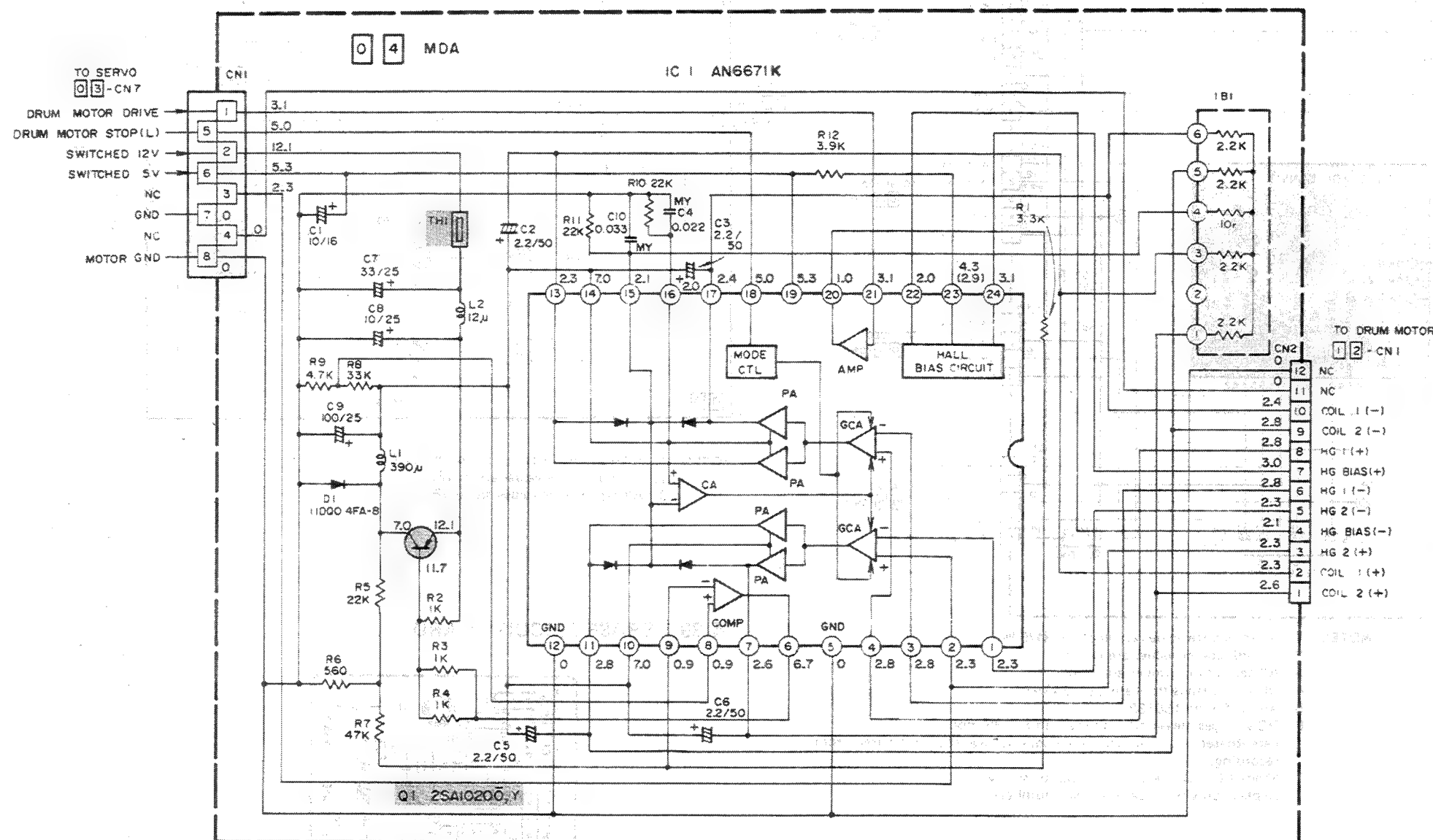
— Parts side —



— Pattern side —

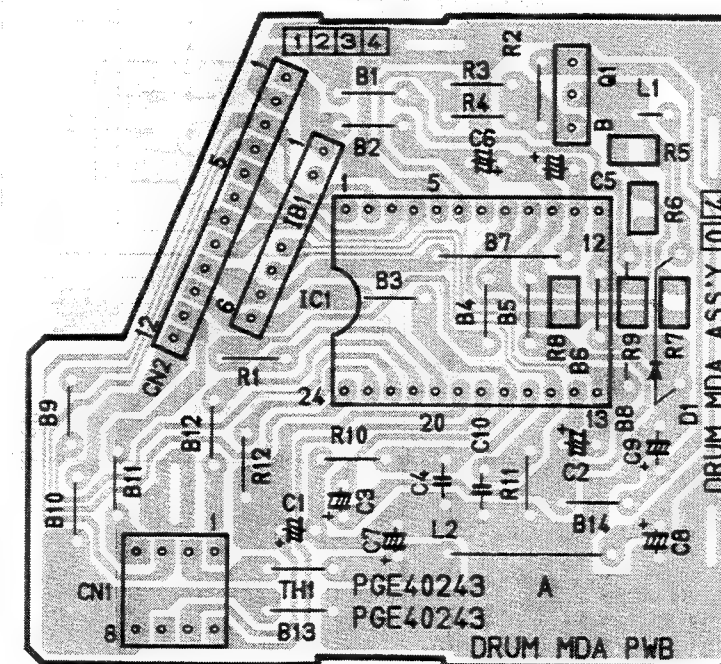


4.34 MDA SCHEMATIC DIAGRAM

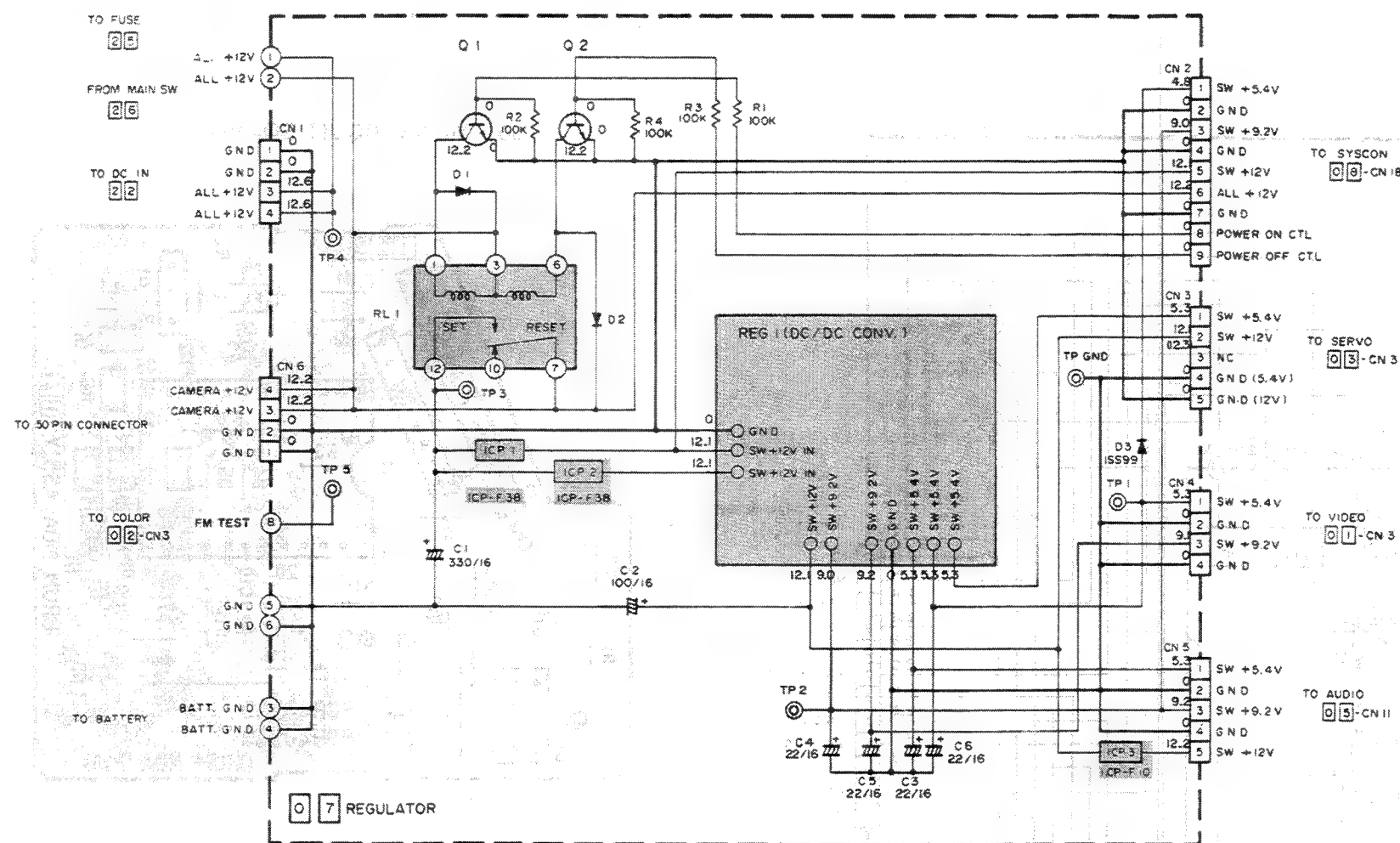


- NOTES:**
1. All resistance values are in ohms. (1/6 W).
 2. All inductance values are in μH.
 3. All capacitance values are in μF.
 4. DC voltages measured with DVM in S-VHS mode.
Parentheses () indicate play-back voltage then this differs from recording.
 5. Shaded parts are critical for safety.
Replace only with specified part numbers.

4.35 MDA CIRCUIT BOARD

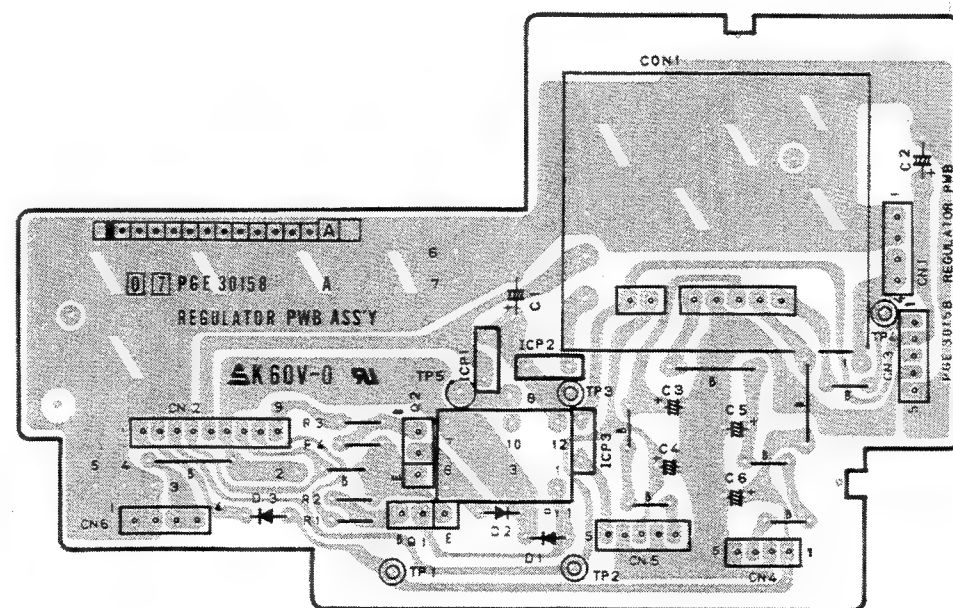


4.36 REGULATOR SCHEMATIC DIAGRAM

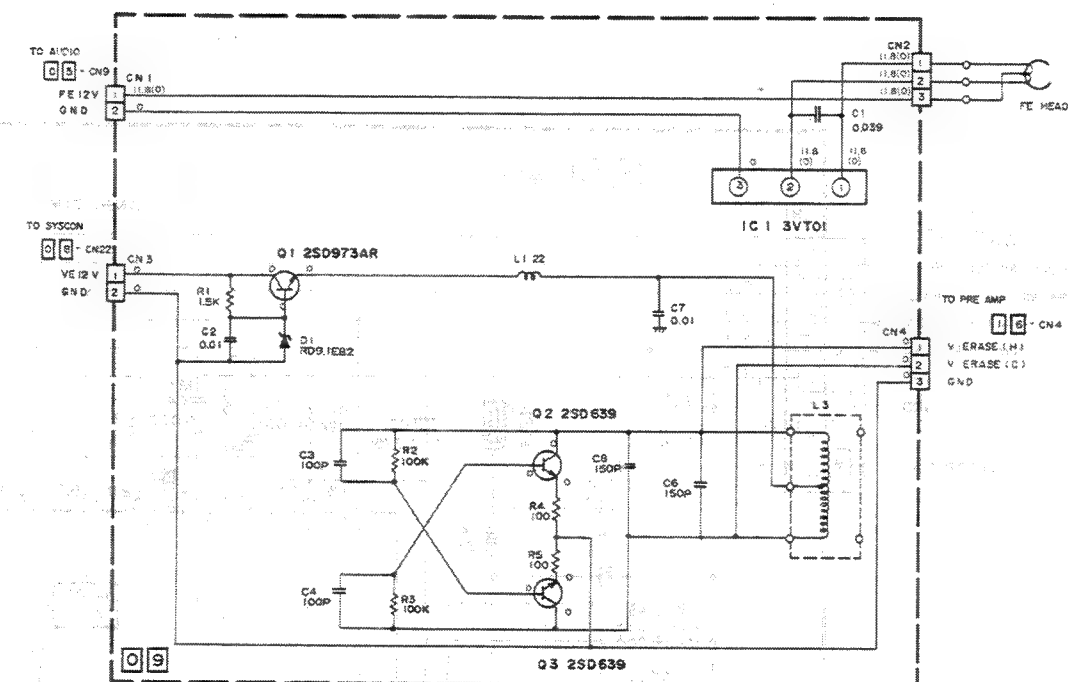


- NOTES: 1. All resistance values are in ohms. (1/6 W)
2. All inductance values are in μ H.
3. All capacitance values are in μ F.
4. NPN type transistors are 2SC1545AB.
5. All diodes are 1SS133.
6. DC voltages measured with DVM in S-VHS mode.
Parentheses () indicate play-back voltage then this differs from recording.
7. Shaded () parts are critical for safety.
Replace only with specified part numbers.

4.37 REGULATOR CIRCUIT BOARD

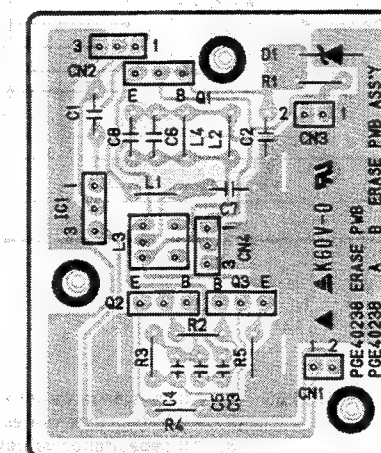


4.38 ERASE SCHEMATIC DIAGRAM

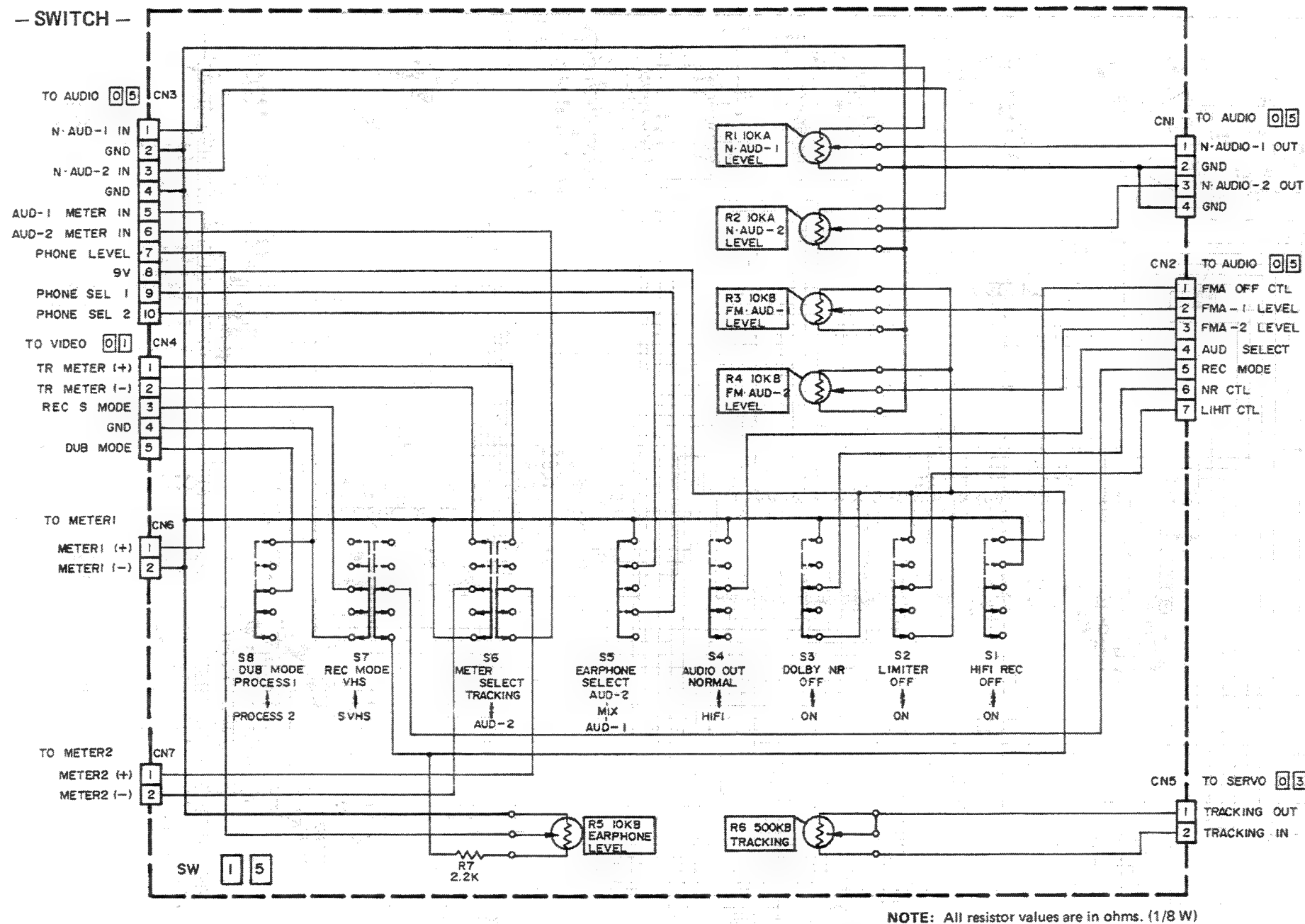


- NOTES: 1. All resistance values are in ohms. (1/6 W).
2. All inductance values are in μ H.
3. All capacitance values are in μ F.

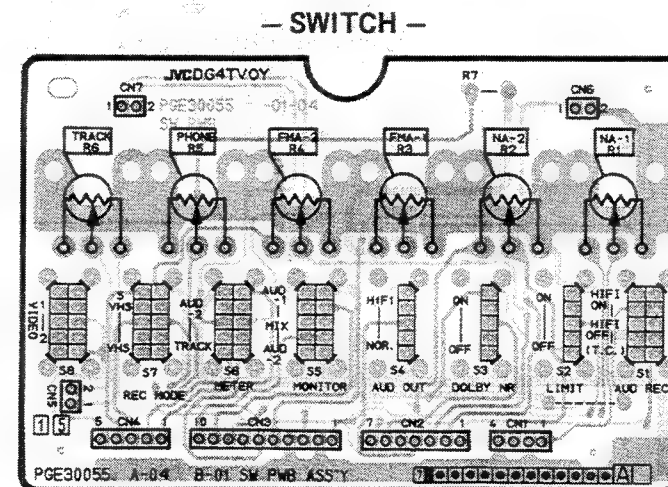
4.39 ERASE CIRCUIT BOARD



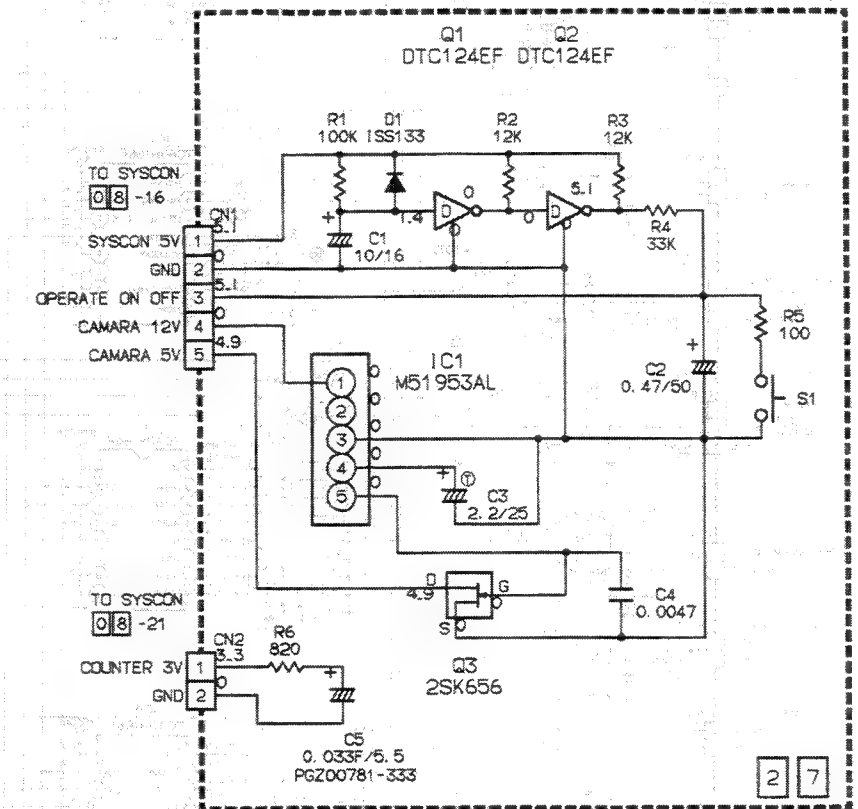
4.40 SWITCH/OPERATION BUTTON SCHEMATIC DIAGRAM



4.41 SWITCH/OPERATION BUTTON CIRCUIT BOARD

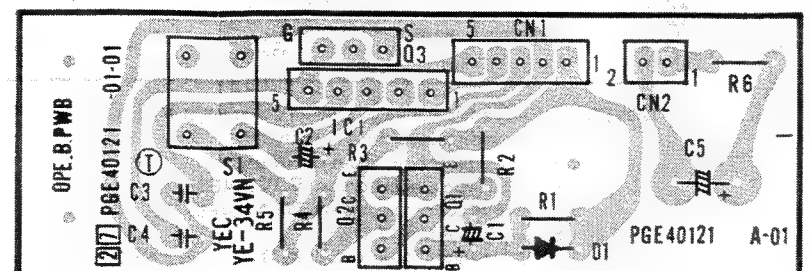


— OPERATION BUTTON —

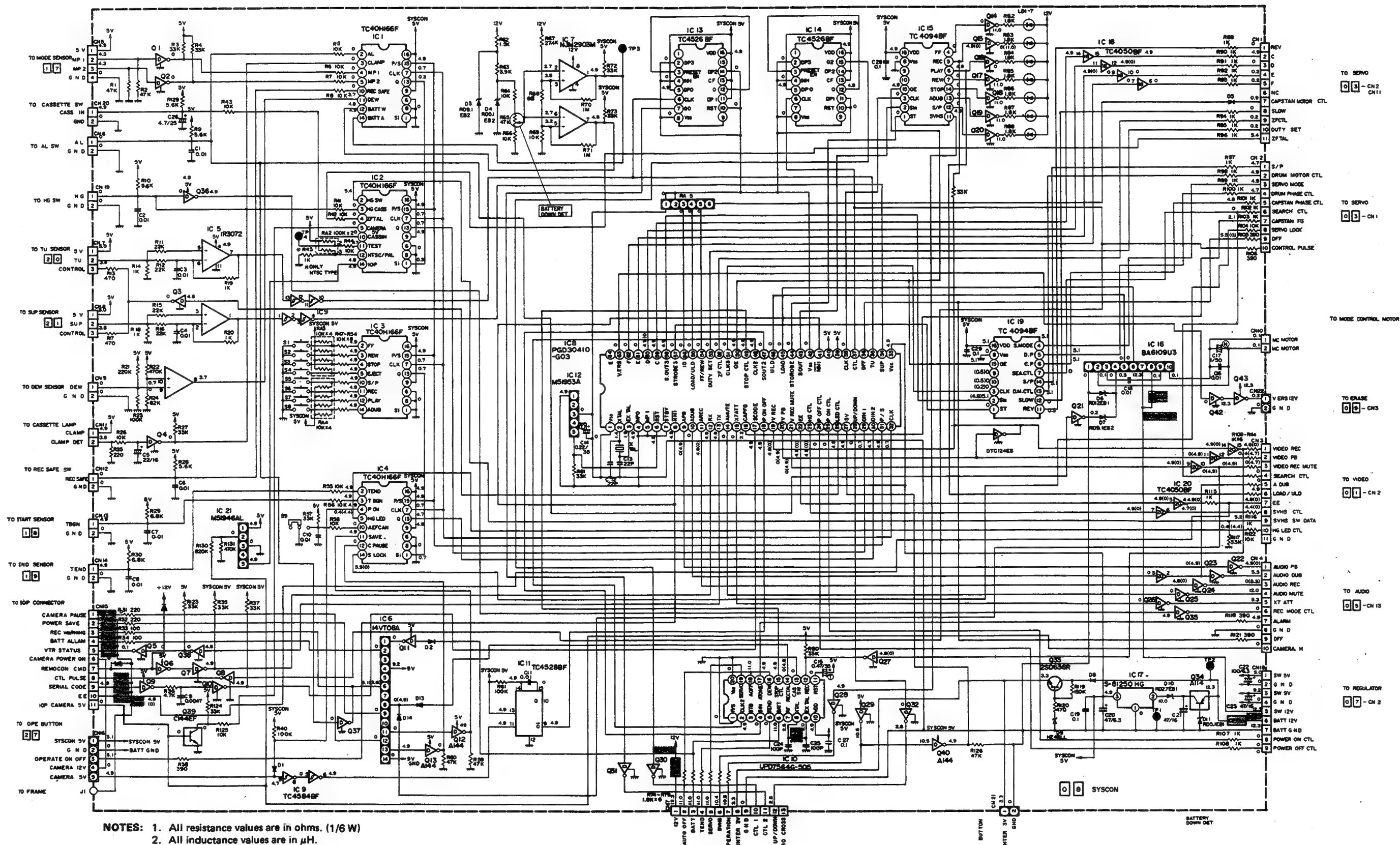


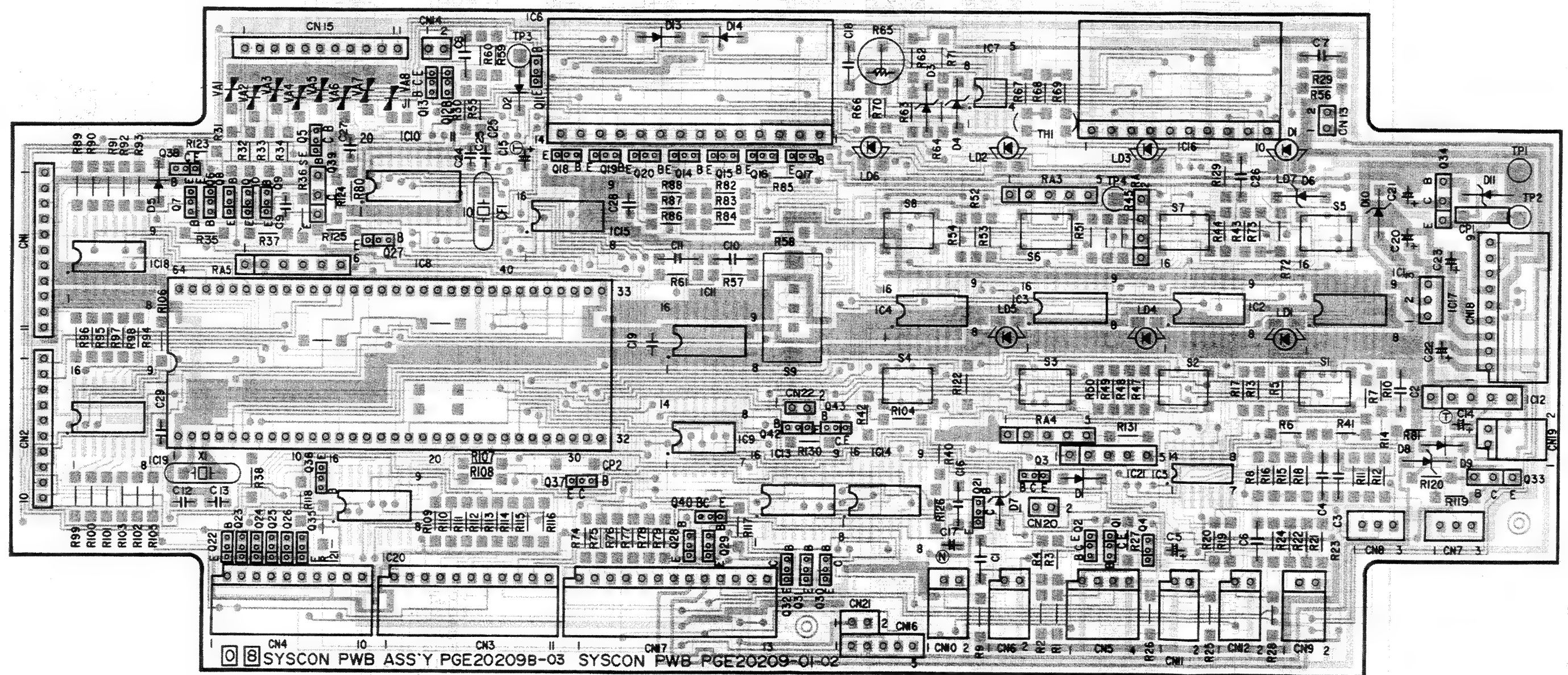
- NOTES:**
1. All resistor values are in ohms. (1/8 W)
 2. All capacitance values are in μ H.
- NOTE:** DC voltages measured with DVM in OPERATE SW OFF mode.

— OPERATION BUTTON —

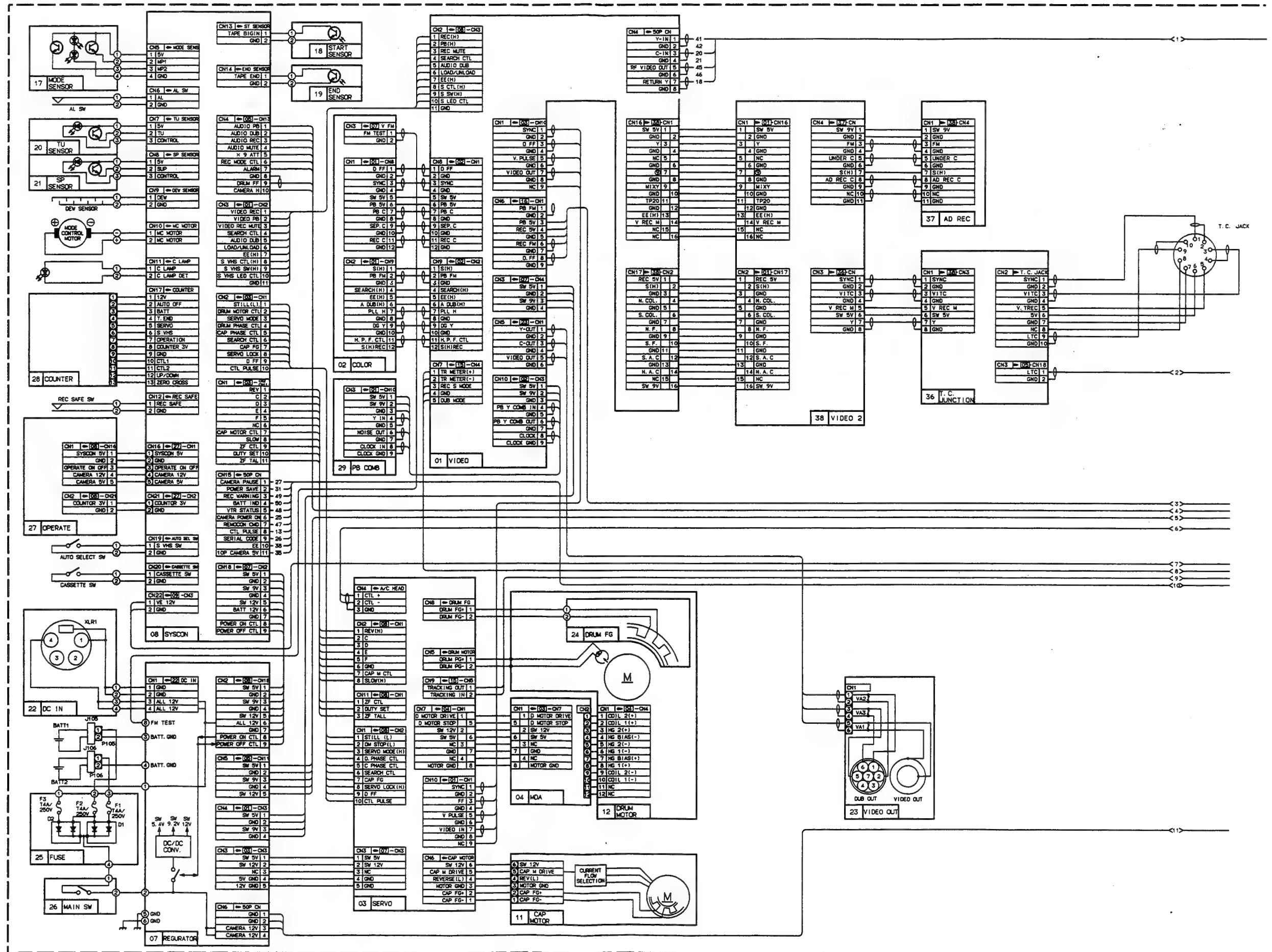


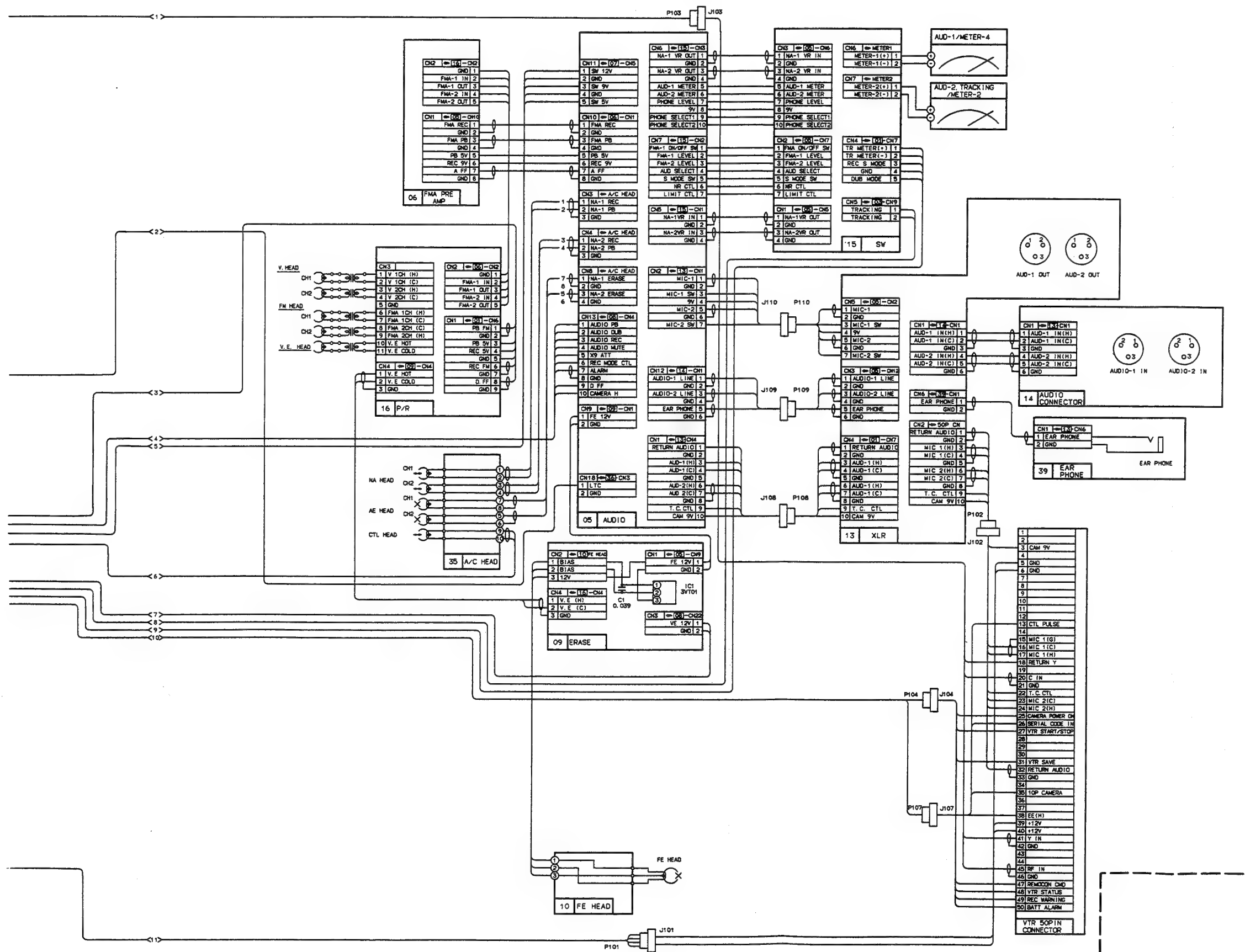
4.42 SYSCON SCHEMATIC DIAGRAM





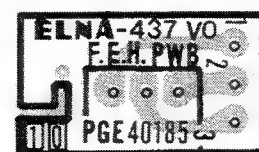
4.44 OVERALL WIRING DIAGRAM



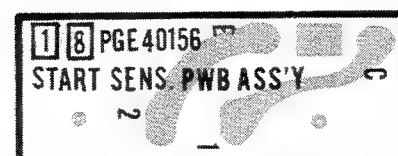


4.45 OTHER CIRCUIT BOARDS

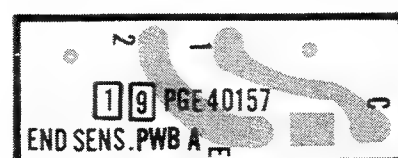
— F.E. HEAD 10 —



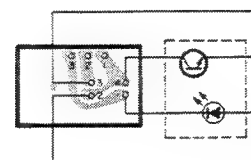
— START SENSOR 18 —



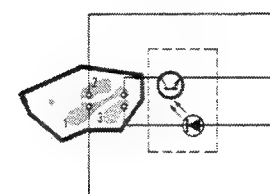
— END SENSOR 19 —



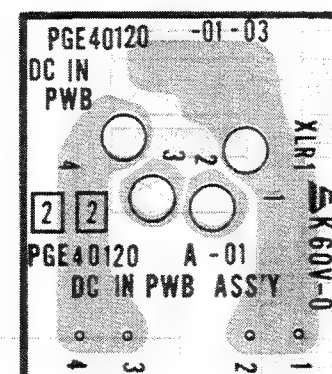
— TAKE-UP SENSOR 20 —



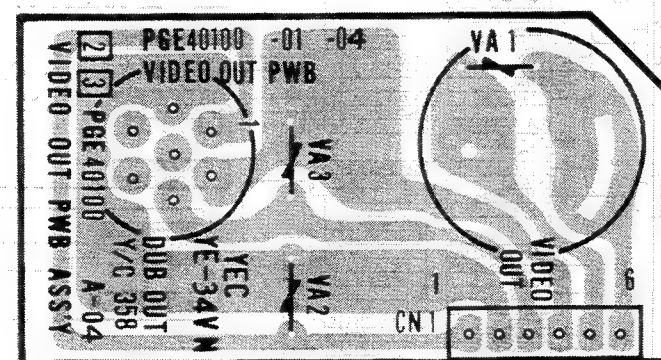
— SUPPLY SENSOR 21 —



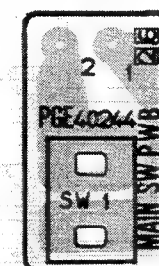
— DC IN 22 —



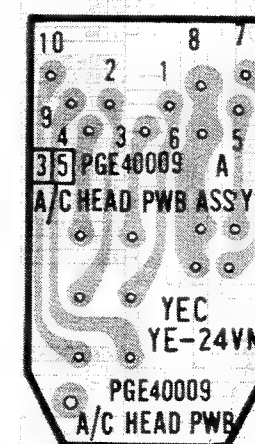
— VIDEO OUTPUT 23 —



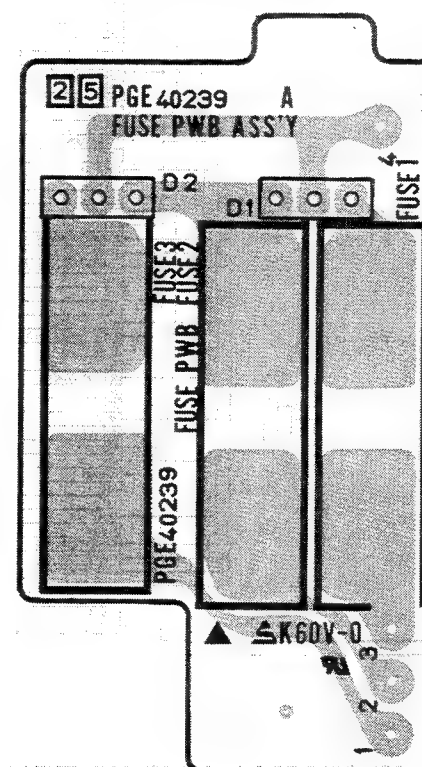
— MAIN SWITCH 26 —



— A/C HEAD 35 —



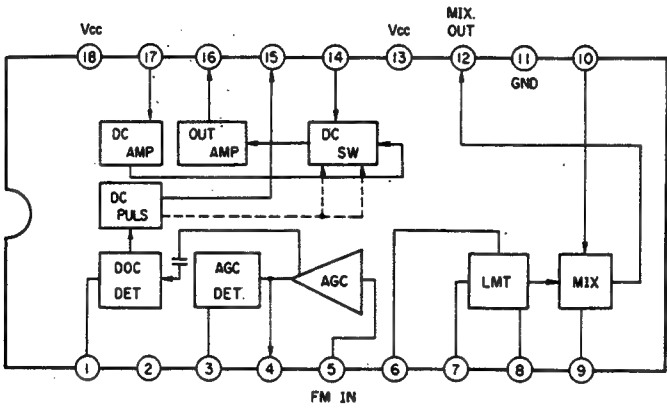
— FUSE 25 —



4.46 IC BLOCK DIAGRAMS

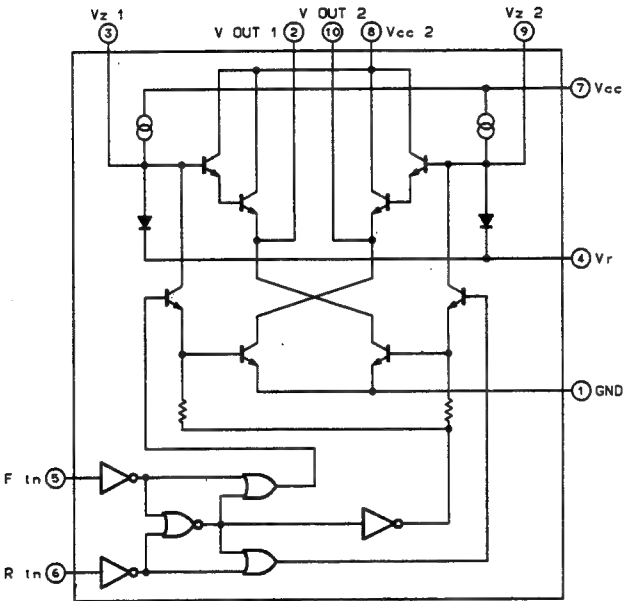
— AN6393 —

VTR Luminance Signal Processing Circuit



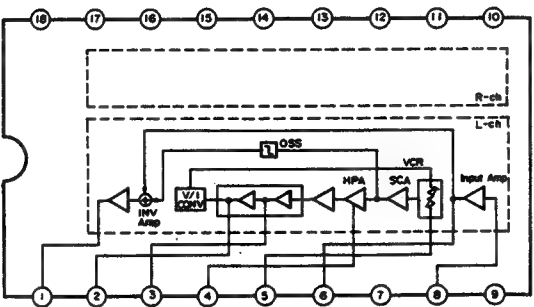
—BA6109—

Reversible Motor Driver



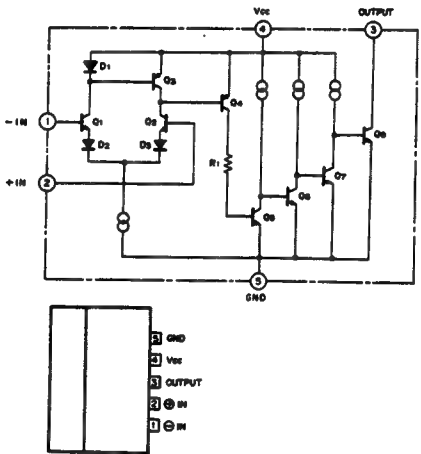
— HA12047MS —

Dolby-B Type Noise Reduction System

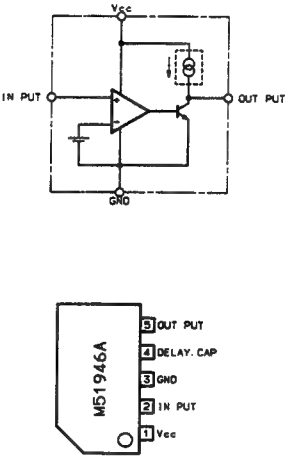


— M51204TL —

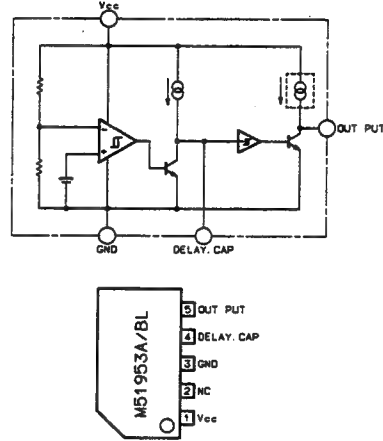
Comparator



— M51946A —

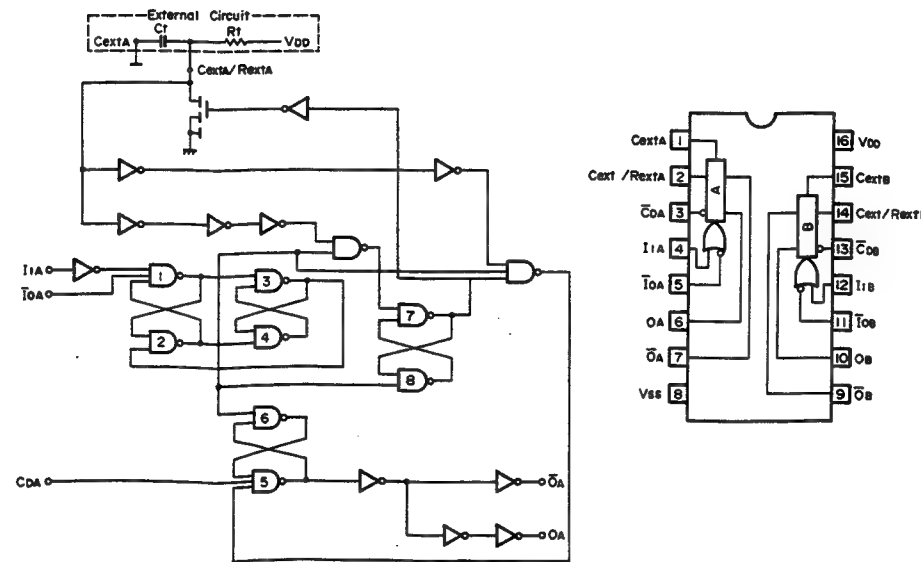


— M51953A —

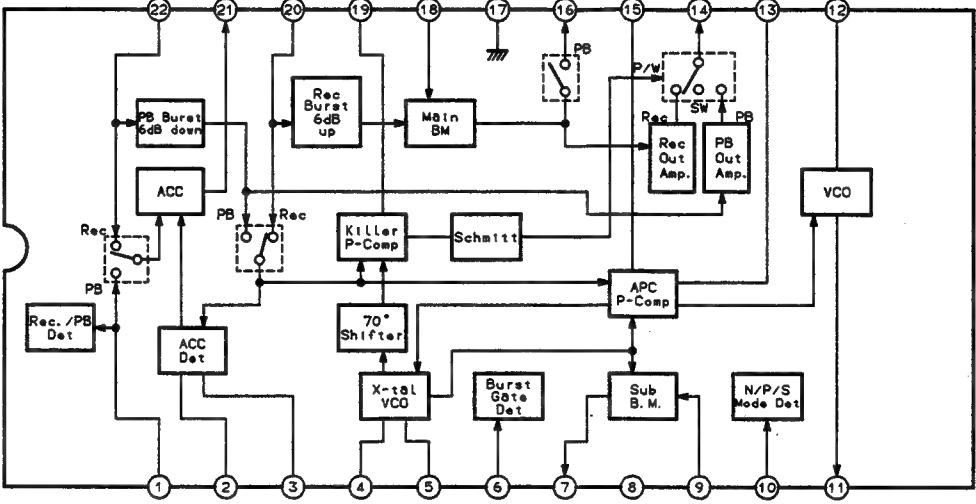


— MN4528B/MN4528BS —

Double Balanced Mixer

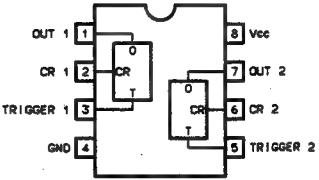


— AN6367NS —



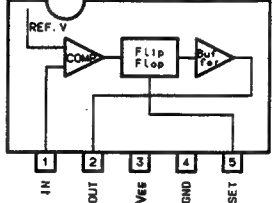
— BA226/BA226F —

Dual Monmult



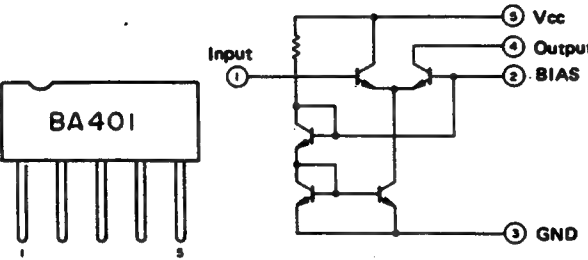
— BA634F —

T Flip-Flop With Reset



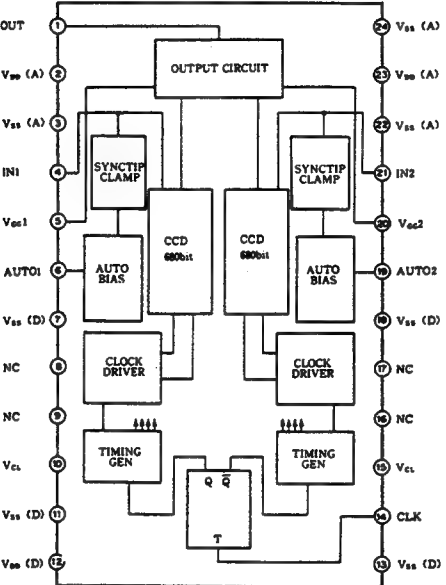
— BA401 —

FM-IF Differential Amplifier



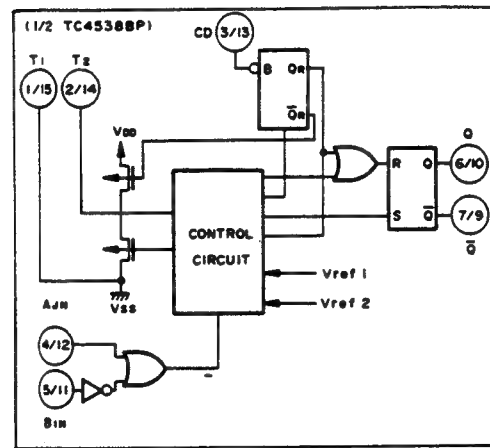
— CXL1004P —

CCD Signal Processor



— MN4538BS —

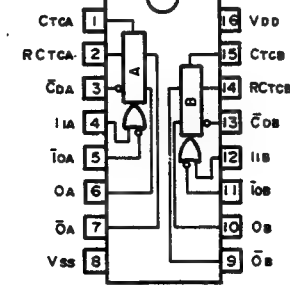
Dual Precision Retriggerable/
Resettable Monostable Multivibrator



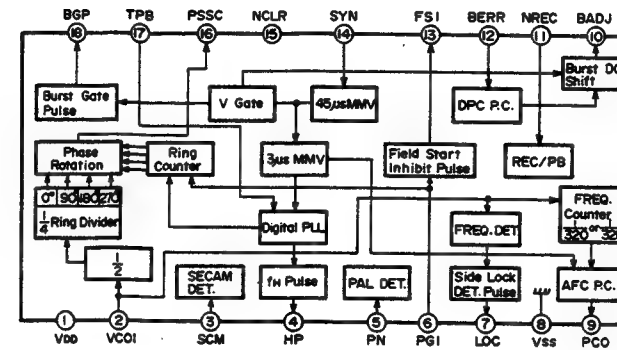
INPUT	OUTPUT	NOTE
A1H	Q1	OUTPUT ENABLE
B1H	Q1	INHIBIT
CD	Q1	INHIBIT
A2H	Q2	OUTPUT ENABLE
B2H	Q2	INHIBIT
CD	Q2	INHIBIT
* * *	L L H	INHIBIT

* Don't Care

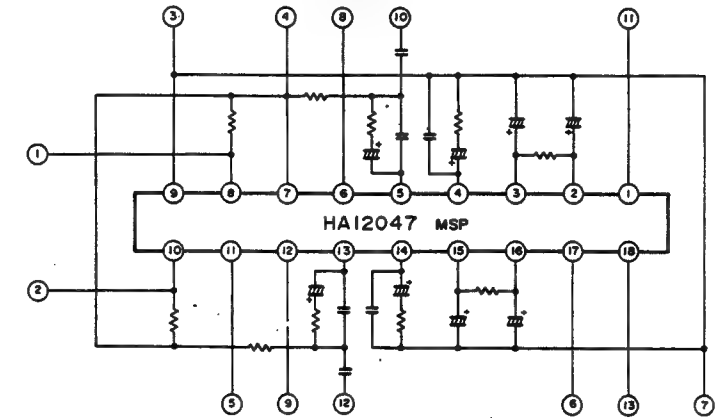
Dual Precision Monostable
Multivibrator



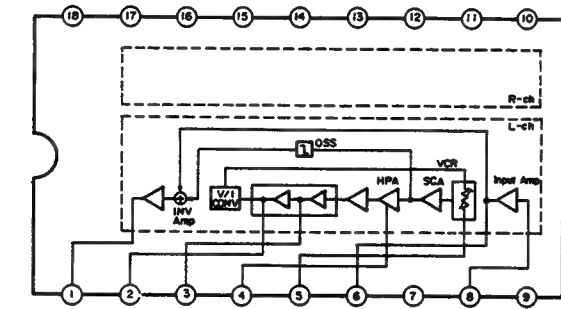
— MN6163AS — CMOS LSI's for Color Signal Processing



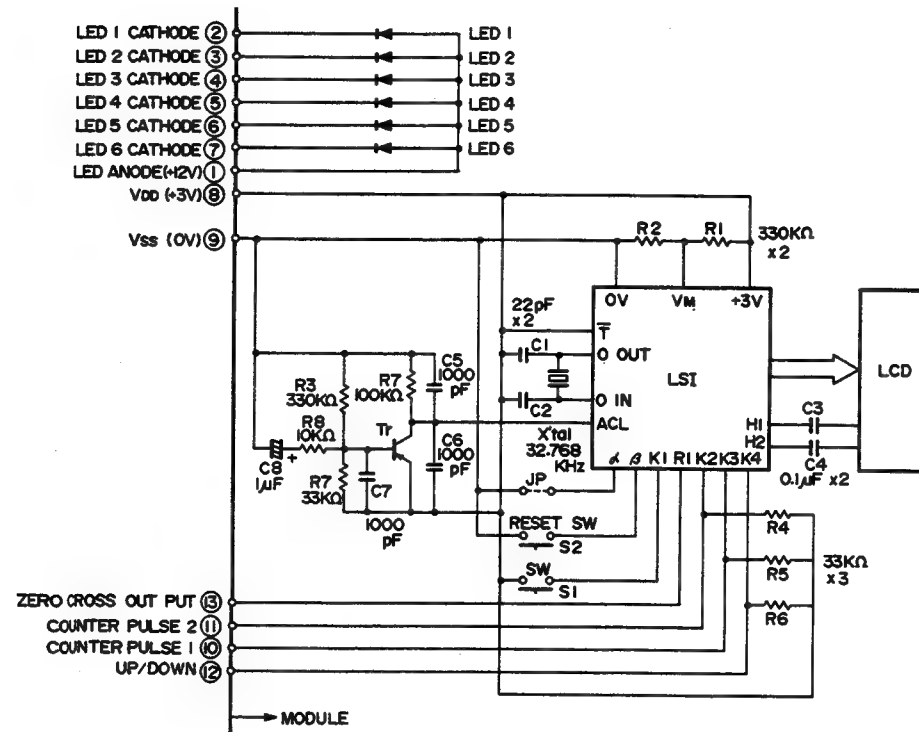
— NR0860 —



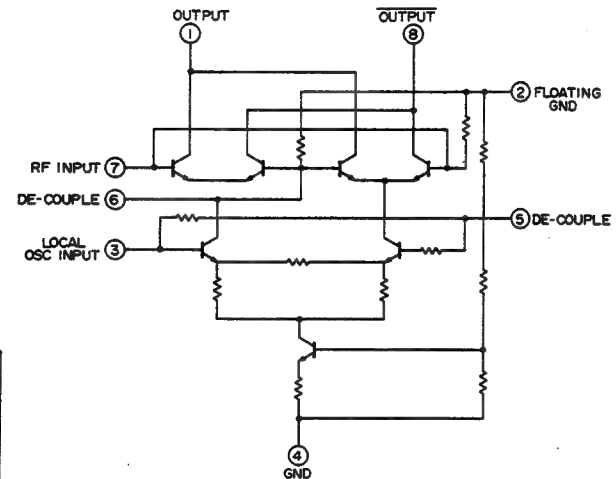
— HA12047MS — Dolby-B Type Noise Reduction System



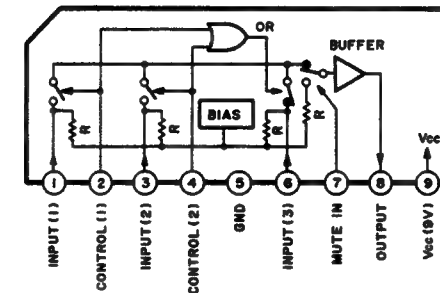
— PGZ00501A-01 — Counter Assembly (2) (8)



— SN76515P — Dual Monostable Multivibrator



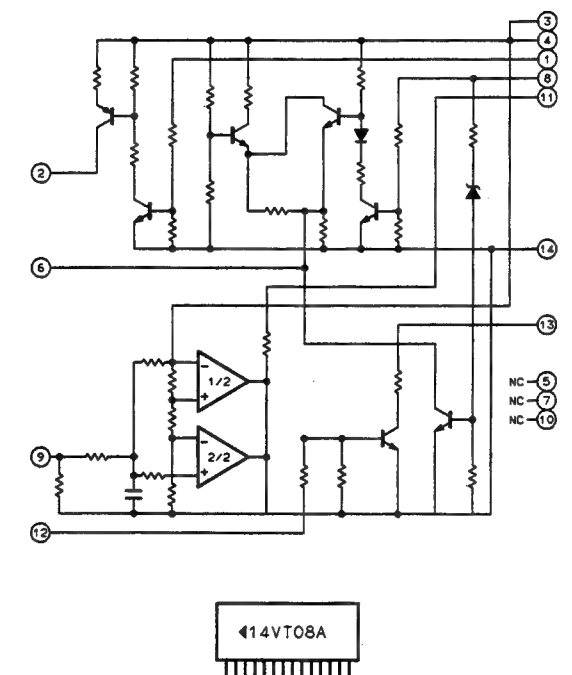
— TA7348P — 3-Input Switch



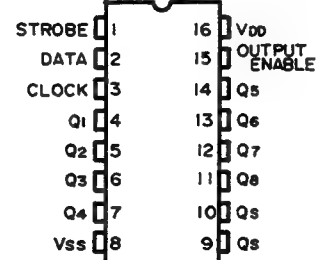
Truth Table

CONTROL (1) 2 Pin	CONTROL (2) 4 Pin	MUTE INPUT 7 Pin	OUTPUT 8 Pin
H	L	L	INPUT(1)
L	H	L	INPUT(2)
L	L	L	INPUT(3)

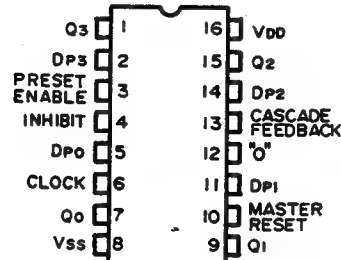
— 14VT08A —



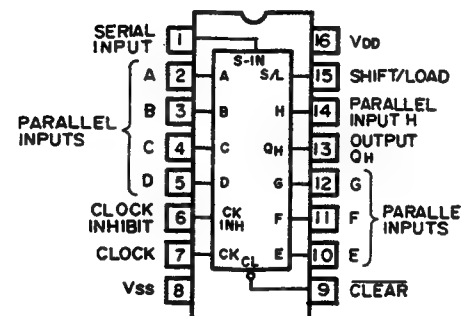
— TC4094BF — 8-Stage Shift-And Store Busregister



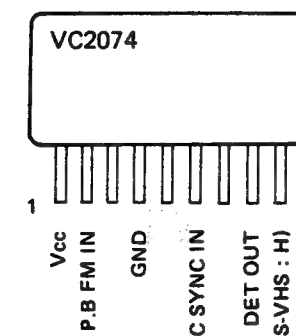
— TC4526BF — Programmable Divide-by-N 4-Bit Counter



— TC40H166F — 8-Bit Shift Register



— VC2074 — PB S-VHS mode Detector



SECTION 5

EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

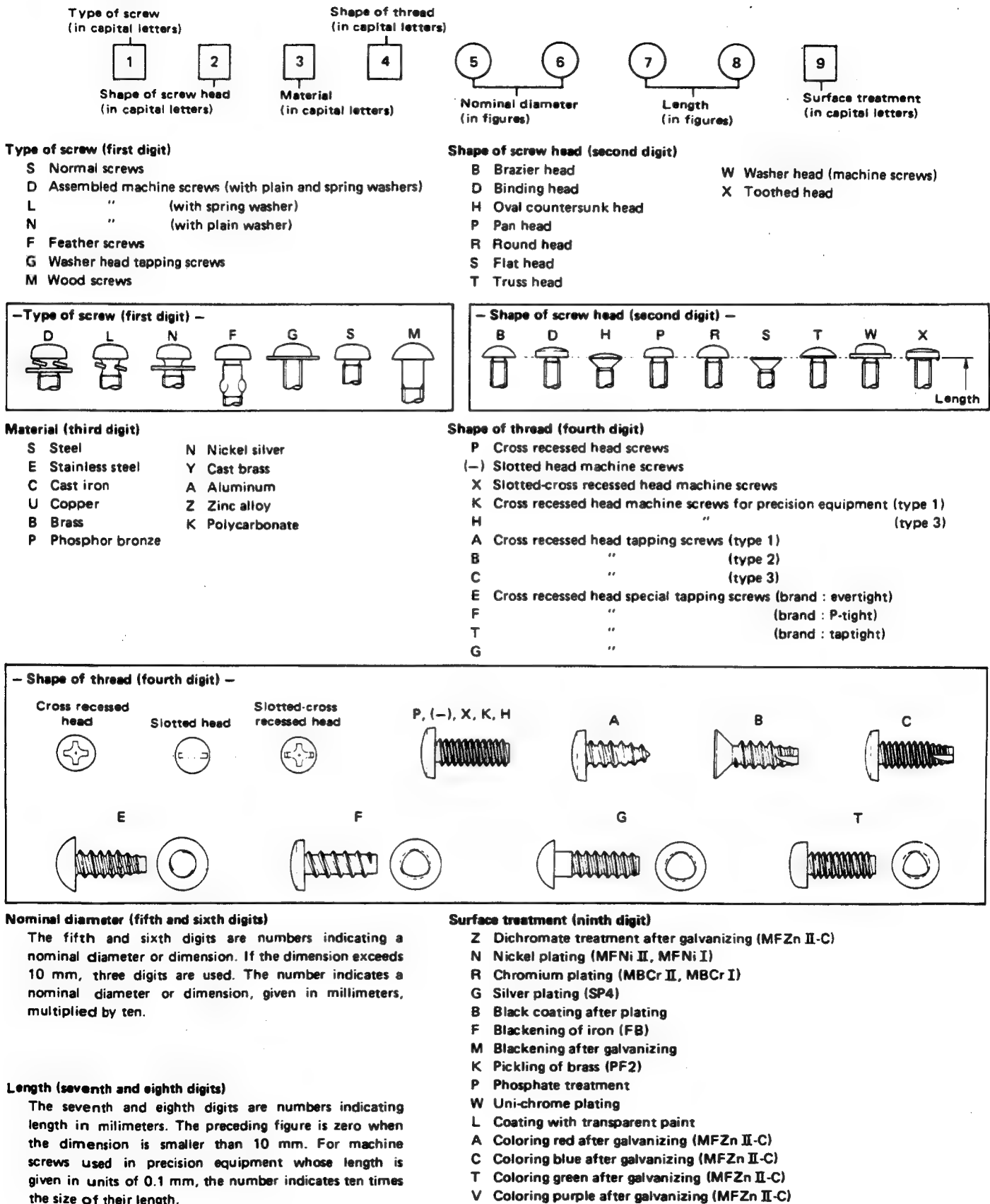
Parts identified by the \triangle symbol are critical for safety.
Replace only with specified part numbers.

	Page
5.1 STANDARD PART NUMBER CODING	
5.1.1 Screw coding	5 - 2
5.1.2 Fuse coding	5 - 3
5.2 EXPLODED VIEWS AND PARTS LIST	
5.2.1 Packing assembly	5 - 4
5.2.2 Cabinet assembly	5 - 6
5.2.3 Frame assembly	5 - 8
5.2.4 Main-deck (1) assembly	5-10
5.2.5 Main-deck (2) assembly	5-12
5.2.6 Battery holder assembly	5-14

5.1 STANDARD PART NUMBER CODING

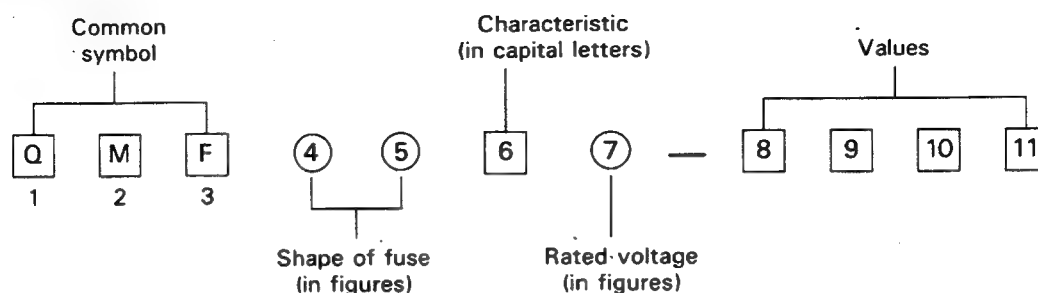
5.1.1 Screw coding

Standard screw part numbers are as follows.



5.1.2 Fuse coding

Standard fuse part numbers are as follows.



Shape of fuse (fourth and fifth digits)

51	φ5.2 × 20 mm
60	φ6.4 × 30 mm
61	φ6.35 × 31.8 mm
63	φ6.4 × 30 mm with lead wires
66	φ6.35 × 31.8 mm with lead wires
00	Special type

Rated voltage (seventh digit)

1	AC125 V
2	AC250 V
3	0.1–1 A : AC250 V 1.25–6.3 A : AC125 V

Values (eighth-tenth or eleventh digits) example:

R63	.....	0.63 A
1R0	.....	1.0 A
2R5	.....	2.5 A
100	.....	10 A
R315	.....	0.315 A
1R25	.....	1.25 A

Characteristics (sixth digit)

Symbol	Fusing Current	Fusing Time	Remarks
A	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 – 10 sec.	
	400 %	0.15 – 3 sec.	
	1000 %	0.02 – 0.3 sec.	
B	210 %	Within 30 min.	Regular fusible type (for SEMKO, Europe)
	275 %	0.05 – 2 sec.	
	400 %	0.01 – 0.3 sec.	
C	135 %	Within 1 hr.	Regular fusible type (for UL, Japan)
	200 %	Within 2 min.	
E	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 – 10 sec.	
	400 %	0.15 – 3 sec.	
	1000 %	0.02 – 0.3 sec.	
J	135 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
M	135 %	Within 1 hr.	Regular fusible type (for UL)
	200 %	Within 2 min.	
R	160 %	Within 1 hr.	Regular fusible type
	200 %	Within 2 min.	
S	160 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
	700 % – 2000 %	Within 0.01 sec.	
U	135 %	Within 1 hr.	Anti-rush type (for UL)
	200 %	Within 2 min.	
	800 % – 2000 %	Within 0.01 sec.	

5.2.1 **M1** PACKING ASSEMBLY

5.2.1 **M1** PACKING ASSEMBLY



— Packing assembly parts list —

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION

*	1. PACKING ASSY <M1>		*

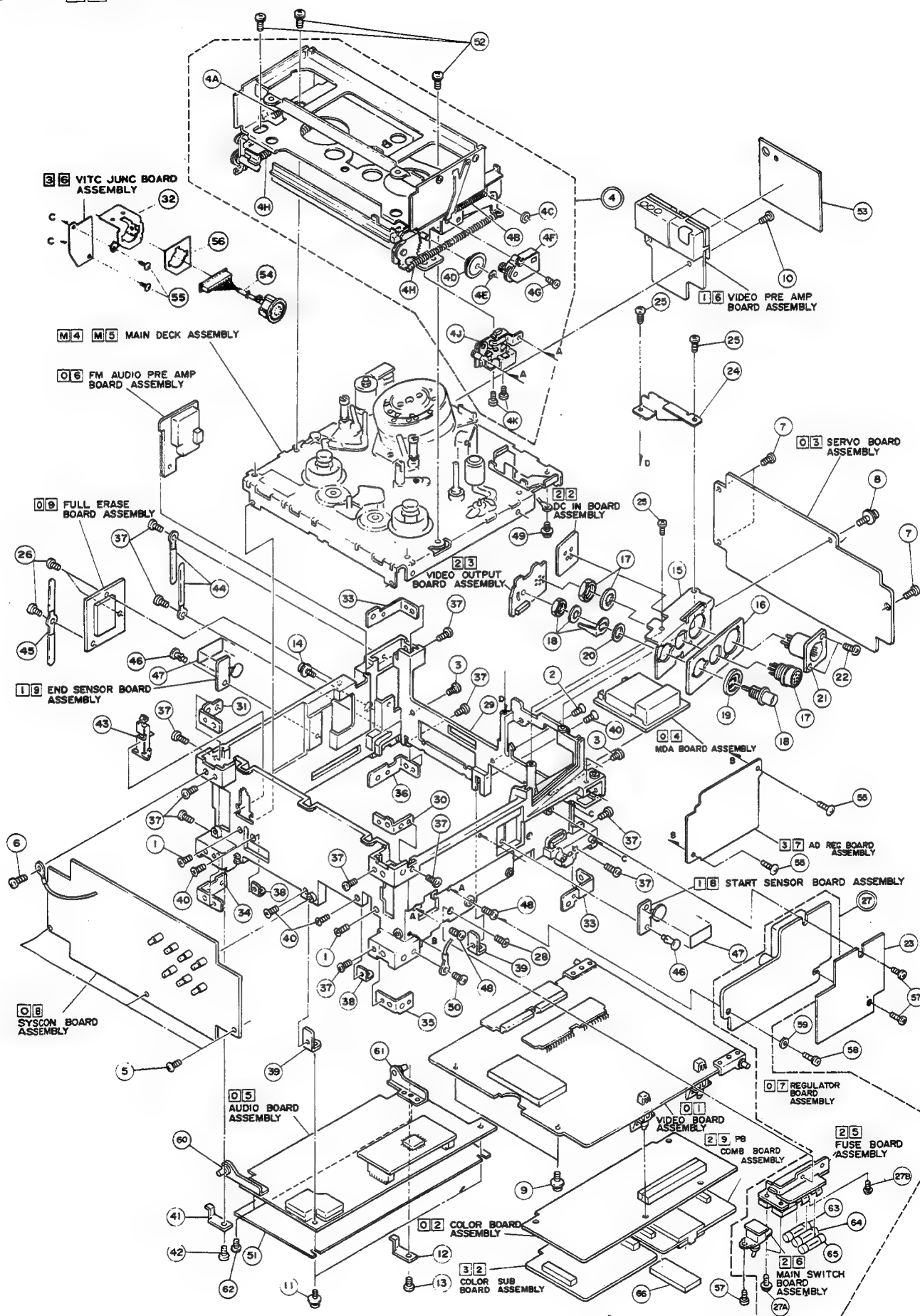
1	PGD20177-07-09	PACKING CASE	
2	PRD20217	CUSHION(L)	
3	PRD20218	CUSHION(R)	
4	PUM30021-26	POLY BAG	
5	PUP40619	SERIAL NO. STICKER, X2	
6	PGD30002-160	INSTRUCTIONS	
7	QPG8024-03404	POLY BAG	
8	PGZ00830-01-01	BATTERY	
9	PGD41133	SHEET	
10	PRD20190-01-02	CUSHION PLATE	
11	QPGA017-02505	POLY BAG	

When shipped from factory the switches and VR's are set as shown below tables.

REAR COVER		FRONT COVER	
SWITCH		AUDIO INPUT SWITCH	
Hi-Fi REC	ON	AUD-1(L) SELECT	LINE
AUDIO LIMITER	ON	AUD-2(R) SELECT	LINE
DOLBY NR	ON	AUD-1(L) LEVEL	-60dB
AUDIO OUT	HiFi	AUD-2(R) LEVEL	-60dB
AUDIO MONITOR	MIX	AUDIO OUT PUT LEVEL	-6dB
METER SELECT	AUD-2(R)		
REC MODE	S-VHS		
VIDEO OUT	PROCESS-1		
VR			
AUD REC LEVEL	CENTER		
MONITOR LEVEL	CENTER		
TRACKING	CENTER		

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	5	PGD20182A-03	SIDE COVER ASSY (LEFT)
	5A	PGD30404-01-01	TERMINAL BOX
	5B	PGD40772	BOX COVER
	5C	SSSF2606M	SCREW, X6
	5D	PGD40773	PLATE
	5E	SSSP2606M	SCREW, X2
△	6	PGD30030-02	SCREW, X3
△	7	SDSP3014M	SCREW
	8	PGD20169A	SIDE COVER ASSY (RIGHT)
	8A	SC30988-003	CAMERA GUIDE
	8B	SDSP3006M	SCREW, X2
	9	ML-G00451B	50PIN CONNECTOR WIRE
	10	LPSP2006Z	SCREW, X2
△	11	PGD30030-02	SCREW, X2
△	12	SDSP3014M	SCREW, X2
	13	PGD20278B-01	FRONT COVER ASSY
△	14	PGD30030	SCREW, X4
	15	PGZ00927	XLR CONNECTOR, X2
	16	SPSP2606N	SCREW, X4
	17	PRD20133G-04	CASSETTE COVER ASSY
△	17A	PGD10119-07-09	CASSETTE COVER
	17B	PRD42279-02	CASSETTE PLATE
	17C	SBSF2006Z	SCREW, X2
	17D	PRD30469	DUST GUARD
△	18	PGD30030	SCREW, X2
	19	PGD10137B	REAR COVER ASSY
	19A	PGD40765-01-02	WINDOW
	19B	PGD40727-02	CUSHION, X2
	19C	PUM30025-2	MARK
	19D	PGD40745-03	SHEET (B)
	19E	PGD30402	PAD
	19F	PGD40746-02	SPRING PLATE
	19G	LPSP2604Z	SCREW, X2
	19H	PGD40747	FUNCTION BUTTON(OPERATE)
	19J	SDSP2606Z	SCREW, X2
	19K	PGD40748	COUNTER BUTTON
	19L	PU49485-3	WIRE CLAMP
	19M	PGD20181	COVER
	19N	PGD40726-02	SHAFT
△	20	PGD30030	SCREW, X4
	21	PGD40750-02	VR KNOB, X6
	22	PGZ00283-04	METER(AUD-1<L>)
	23	PGZ00283-05	METER(AUD-2<R>/TRACKING)
	24	PGD40751	METER PLATE
	25	PU52465-02	CUSHION (A), X2
	26	SDSP2606Z	SCREW, X3
	27	SDSP2606Z	SCREW, X3
	28	PGZ00501B	COUNTER ASSY
	29	SDSP2606Z	SCREW, X4
	30	SDSP2606Z	SCREW, X4
	31	PGD40810	SWITCH PROTECTOR
	32	SDSP2604M	SCREW
△	33	TJL-000420	STICKER
△	34	PGD40895-02	LABEL
△	35	PU49729	LABEL
	36	PGD40887	LABEL
△	37	PRD30071-03	SERIAL NO. PLATE
	38	PGD41198	PLATE
	39	SDSP2604M	SCREW, X2
	40	PRD42699	SHADE
	41	PGJ05027	BATTERY CONNECTOR
	42	PRD42601	SLIDE KNOB, X5
	43	SDSP2606Z	SCREW, X4
	44	SPSP2606N	SCREW, X4
	45	PGZ01280	DUST CAP

5.2.3 M3 Frame assembly



— Frame assembly parts list —

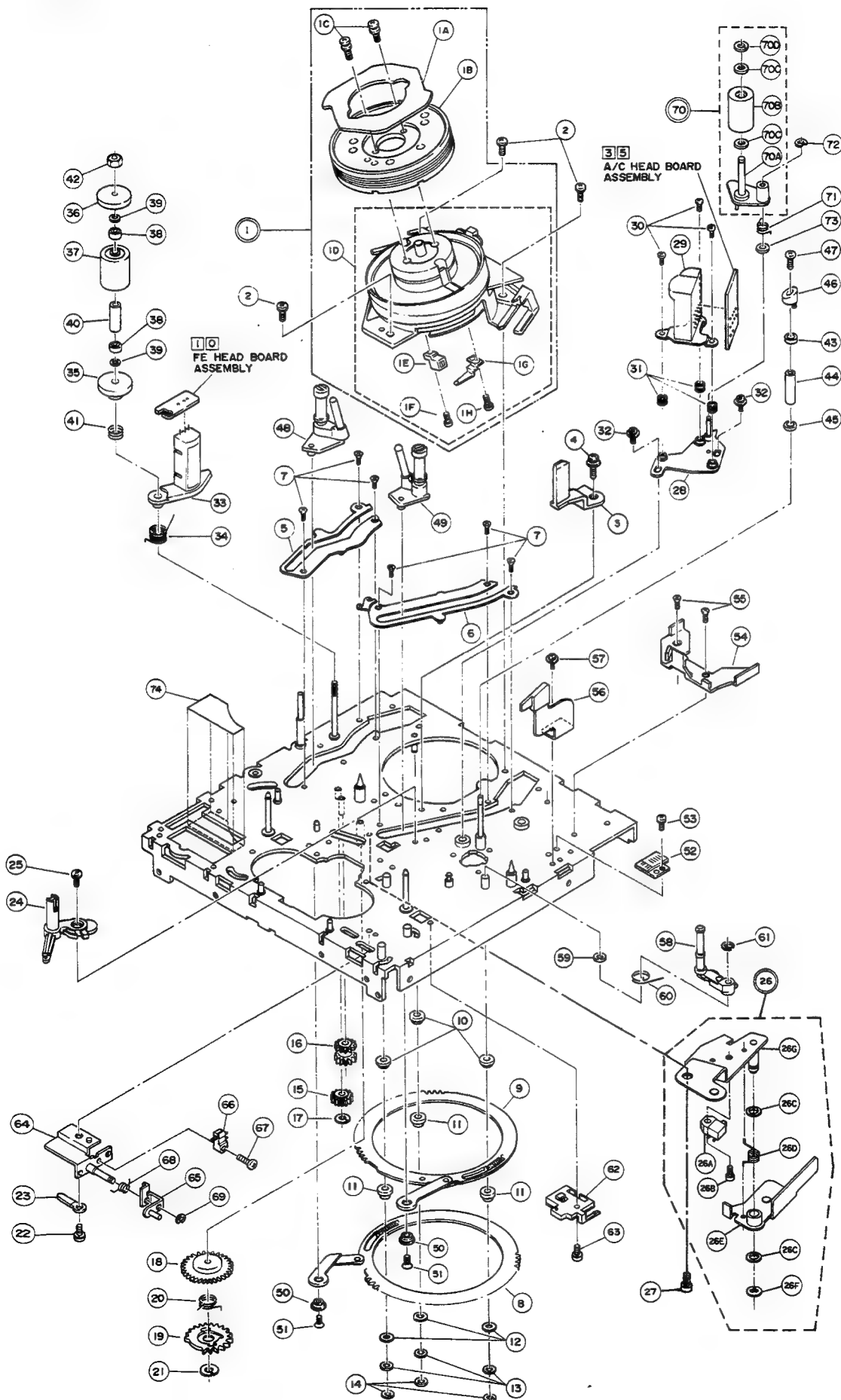
#	REF NO.	PART NO.	PART NAME, DESCRIPTION

* 3. FRAME ASSY <M3> *			

1		SSSP3012Z	SCREW, X2
2		SSSP3006Z	SCREW
3		LPSP3005Z	SCREW, X2
4		PGS20168C	CASSETTE HOUSING ASSY
4A		PQM30001-166	TORSION SPRING(L)
4B		PQM30001-167	TORSION SPRING(R)
4C		PQM30017-1	SLIT WASHER
4D		PQ41036	DUMP GEAR
4E		REE-1500	E WASHER
4F		PU56781	DAMPER
4G		LPSP2006Z	SCREW
4H		PQM30001-177	TENSION SPRING, X2
4J		PGD30409A-02	DETECT SWITCH ASSY
4K		LPSP2606Z	SCREW, X2
5		SBSF2606Z	SCREW, X3
6		SPST2606Z	SCREW
7		SBSF2606Z	SCREW, X3
8		SPSP2610Z	SCREW
9		DPSP2605Z	SCREW, X2
10		SSSP2605Z	SCREW, X2
11		DPSP2605Z	SCREW, X2
12		PGD40725	STOPPER
13		SBSF2606Z	SCREW
14		DPSP2605Z	SCREW
15		PGD40767	CONNECTOR BRACKET
16		PGD40774-02	SHEET(C)
17		PGZ00593	7PIN CONNECTOR, Y/C 443 OUT
18		PU51213	BNC CONNECTOR, VIDEO OUT
19		PU48611	RING
20		Q03093-439	WASHER
△ 21		PGZ00594	4PIN CONNECTOR, DC IN
22		SPSP2604R	SCREW, X2
23		PGD41232	INSULATOR
24		PRD30451	BOARD BRACKET
25		SBSF2608Z	SCREW, X3
26		SBSF2606Z	SCREW, X3
27		PGD40924A	POWER UNIT ASSY
27A		DPSP2610Z	SCREW, X2
27B		SDSP2606Z	SCREW
28		SSSP2605Z	SCREW
29		PGD10113-01-06	FRAME
30		PGD40716	CORNER BRACKET(1)
31		PGD40717	CORNER BRACKET(2)
32		PGD41179	CONNER BRACKET
33		PGD40719	CORNER BRACKET(4), X2
34		PGD40720	CORNER BRACKET(5)
35		PGD40721	CORNER BRACKET(6)
36		PGD40722	CORNER BRACKET(7)
37		SPST2606Z	SCREW, X12
38		PGD40723-01-01	BOARD BRACKET(1), X2
39		PGD40724-01-01	BOARD BRACKET(2), X2
40		SSSP2605Z	SCREW, X4

#A	REF NO.	PART NO.	PART NAME, DESCRIPTION
41		PGD40725	STOPPER
42		SBSF2606Z	SCREW
43		PGS40035A	REC SAFETY SWITCH ASSY
44		PU49485-2	WIRE CLAMP, X2
45		PU49486	WIRE CLAMP
46		PGZ00805	PLASTIC RIVET, X2
47		PQ41253	SHEET, X2
48		SPSP2606Z	SCREW, X2
49		DPSP3005Z	SCREW
50		SPST2606Z	SCREW
51		PGD40889	SHEET
52		LPSP3006Z	ASSY SCREW, X3
53		PGD40949	SHEET
54		ML-G00710A-02	10PIN ASSY WIRE
55		SBSF2606Z	SCREW, X4
56		PGD41180	SHEET
57		SBSF2606Z	SCREW, X3
58		SDSP2610Z	SCREW
59		WBS2600N	WASHER
60		PGD40782A	BRACKET ASSY (F)
61		PGD40784A	BRACKET ASSY (R)
62		SPSP2606Z	SCREW, X2
63		QMF51E2-4R0	FUSE, F1
64		QMF51E2-4R0	FUSE, F2
65		QMF51E2-4R0	FUSE, F3
66		PGD40935	SPACER

5.2.4 **M**4 Main-deck (1) assembly



— Main-deck (1) assembly parts list —

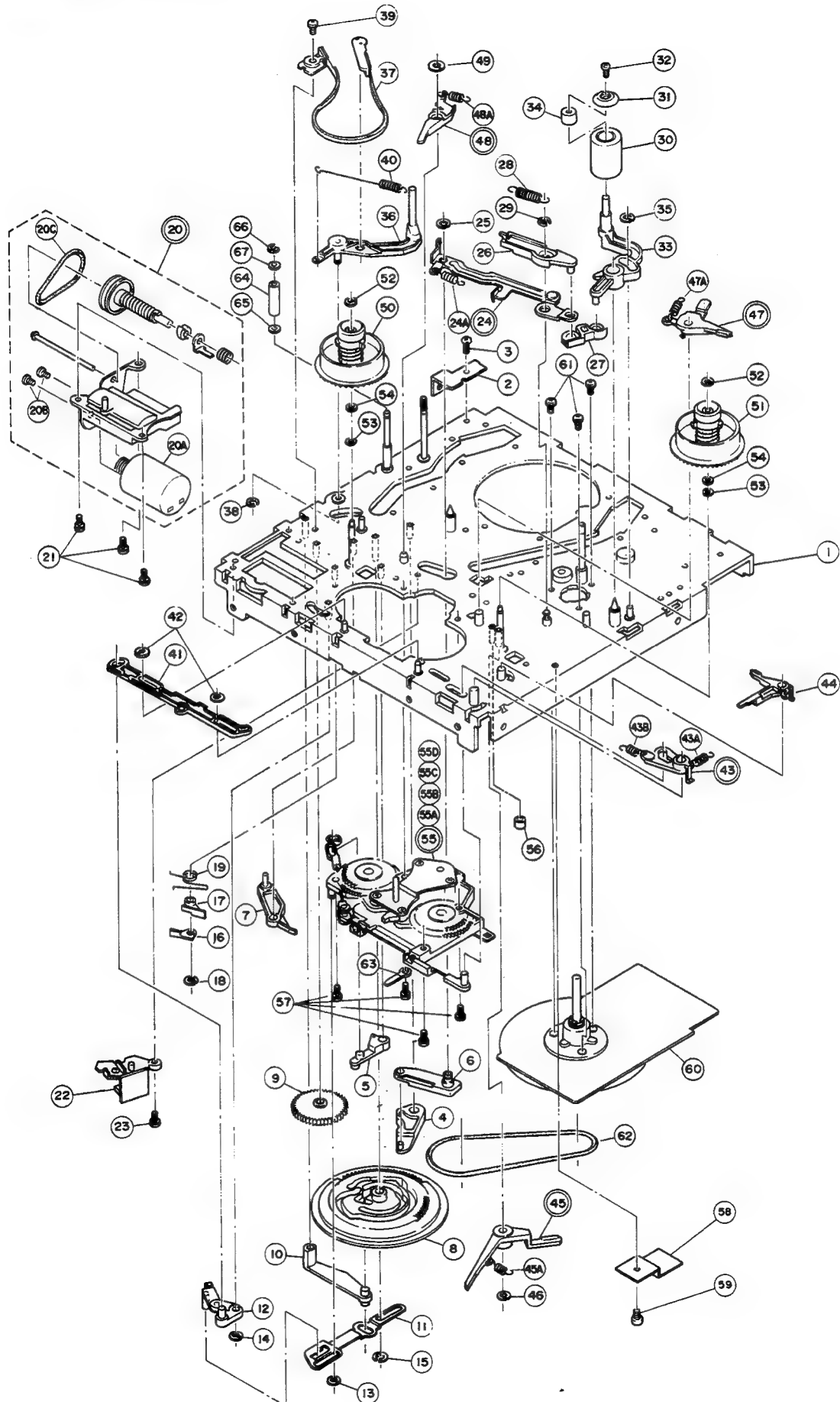
#	REF NO.	PART NO.	PART NAME, DESCRIPTION
---	---------	----------	------------------------

 * 4. MAIN DECK(1) ASSY <M4> *

1	PDV2158D	DRUM ASSY
1A	PDM3247	UPPER DRUM BOARD
1B	PDM2140B	UPPER DRUM ASSY
1C	PDM4165A	DRUM SCREW ASSEMBLY, X2
1D	PDM2078D	LOWER DRUM MOTOR ASSY
1E	PQ40352K	PICKUP HEAD ASSY
1F	SPSH1735Z	MINI SCREW
1G	PU56798-3	BRUSH ASSY
1H	LPSP2003Z	SCREW
2	LPSP2608Z	SCREW, X3
3	PRD30287-01-03	TAPE GUIDE
4	SDSP2606Z	SCREW
5	PQ30264	GUIDE RAIL(S)
6	PQ30265	GUIDE RAIL(T)
7	PQ41269-2	SPECIAL SCREW, X6
8	PQ40812A-1	LOADING RING ASSY
9	PQ40816A-1	LOADING RING ASSY
10	PQ40819-1-2	GUIDE ROLLER 1, X3
11	PQ40820-1-2	GUIDE ROLLER 2, X3
12	PQM30005-40	COLLAR, X3
13	Q03093-827	SPACER, X3
14	PQM30017-22	SLIT WASHER, X3
15	PQ40822	CONNECT GEAR 1
16	PQ40823	CONNECT GEAR 2
17	PQM30017-24	SLIT WASHER
18	PQ30336	LOADING GEAR 1
19	PQ30337	LOADING GEAR 2
20	PQ41069	TORSION SPRING
21	PQM30017-18	SLIT WASHER
22	LPSP2604Z	SCREW
23	PU49485-3	WIRE CLAMP
24	PGS30044A	CASSETTE LED ASSY
25	LPSP2606Z	SCREW
26	PGS30103A	AL SWITCH ASSY
26A	PGZ00503	INSERT SWITCH
26B	SPSP2006Z	SCREW
26C	Q03093-831	WASHER, X2
26D	PRD42600	TORSION SPRING
26E	PRD42599A	AL SWITCH LEVER ASSY
26F	REE2000	"E"RING
26G	PRD42595A	AL SWITCH BRACKET ASSY
27	DPSP2604Z	SCREW
28	PRD42270A	HEAD BASE ASSY
29	PGZ00588	A/C HEAD ASSY
30	PQ43687A	SCREW, X3
31	PU30080-49	SPRING, X3
32	DPSP3007Z	SCREW, X2
33	PQ40865A	FE HEAD ASSY
34	PQ40871	TORSION SPRING
35	PRD42175	LOWER FLANGE
36	PRD42183	UPPER FLANGE
37	PRD42129	IMPEDANCE ROLLER

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
38		PU44093	BALL BEARING, X2
39		Q03093-825	WASHER, X2
40		PRD30026-07	COLLAR
41		PQM30002-124	COMPRESSION SPRING
42		PQ40353	NYLON NUT
43		PQ40268-2	GUIDE FLANGE
44		PU53629-2	TAKE-UP GUIDE POLE
45		PQ41348-2	GUIDE FLANGE(TAKE-UP)
46		PQ42999-2-1	GUIDE POLE CAP
47		SDSP2006Z	SCREW
48		PRD42474A-01	POLE BASE ASSY(SUPPLY)
49		PRD42473A-01	POLE BASE ASSY(TAKE-UP)
50		PQ40872	SPACER, X2
51		PQ41269	SPECIAL SCREW, X2
52		PU56637B	DEW SENSOR ASSY
53		LPSP2604Z	SCREW
54		PRD42273	BOARD HOLDER
55		SSSP2605Z	SCREW, X2
56		PQ40873A	DOOR GUIDE ASSY
57		LPSP2605Z	SCREW
58		PQ40993B	TAKE-UP GUIDE ASSY
59		PQM30018-33	WASHER
60		PQ40994-1-2	TORSION SPRING
61		REE2500	E WASHER
62		PGS40032A	TAKE-UP SENSOR ASSY
63		LPSP2606Z	SCREW
64		PRD42107A	SWITCH BRACKET ASSY
65		PRD42105A	SWITCH LEVER ASSY
66		PGZ00503	INSERT SWITCH
67		SPSP2006Z	SCREW
68		PRD42110	TORSION SPRING
69		REE1500	E WASHER
70		PRD42434A-01	IMPEDANCE ROLLER ASSY
70A		PRD42271A-01	IMPEDANCE ROLLER ARM ASSY
70B		PRD42324A-01	IMPEDANCE ROLLER ASSY
70C		Q03093-830	WASHER, X2
70D		PQM30017-7	SLIT WASHER
71		PRD42275	TORSION SPRING
72		REE1500	E WASHER
73		Q03093-830	WASHER
74		PRD42816	COVER

5.2.5 **M**5 Main-deck (2) assembly



— Main-deck (2) assembly parts list —

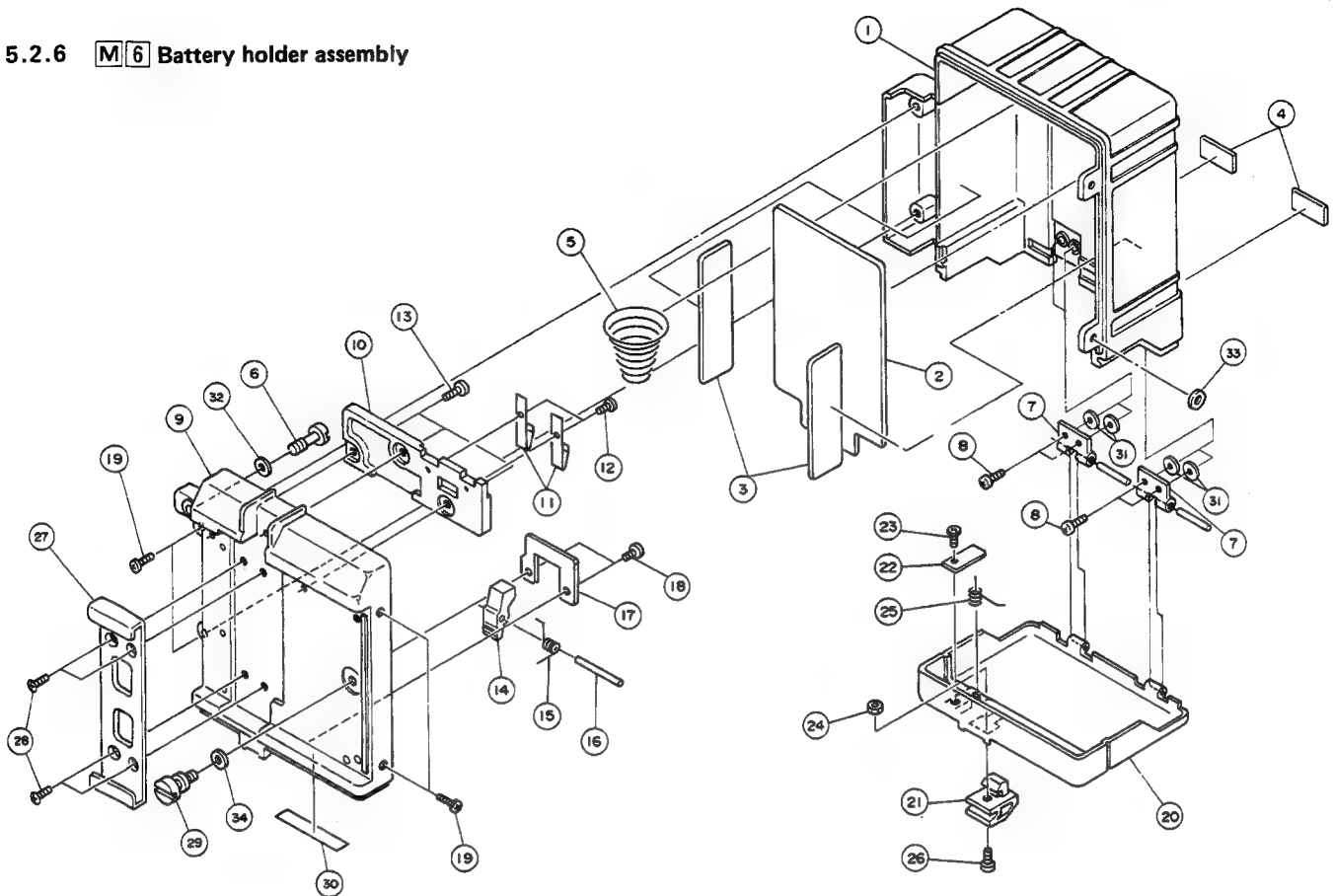
#△ REF NO. PART NO. PART NAME, DESCRIPTION

* 5. MAIN DECK(2) ASSY <M5> *

1	PRD10041A-03	MAIN DECK ASSY
2	PGD40714-01-02	BOARD BRACKET
3	LPSP2606Z	SCREW
4	PQ40826	CAM LEVER 1
5	PQ40827	CAM LEVER 2
6	PQ40828A	RELAY ARM ASSY
7	PRD42569A	CANCEL LEVER ASSY
8	PRD20207	CONTROL CAM
9	PQ40833	WORM WHEEL
10	PQ40834A	CANCEL LEVER 3 ASSY
11	PQ40836-1-2	SLIDE PLATE
12	PQ40837B	RELAY LEVER ASSY
13	PQM30017-22	SLIT WASHER
14	PQM30017-23	SLIT WASHER
15	REE2500	E WASHER
16	PQ41225-1-2	CAM BRAKE 1
17	PQ41226	CAM BRAKE 2
18	PQM30017-23	SLIT WASHER
19	PQ41252-2-2	TORSION SPRING
△ 20	PGZ00780-01-01	MODE MOTOR BRACKET ASSY
20A	PU56592V	MODE MOTOR ASSY
20B	SPSP2004Z	SCREW, X2
20C	PQM30003-15	BELT (MODE CONTROL)
21	LPSP2605Z	SCREW, X3
22	PGS30043A	MODE SENSOR ASSY
23	LPSP2606Z	SCREW
24	PQ30267B	PINCH ROLLER PLATE ASSY
24A	PQM30001-153	TENSION SPRING
25	PQM30017-23	SLIT WASHER
26	PQ40843	TOGGLE ARM 1
27	PQ40844	TOGGLE ARM 2
28	PQ41124-1-1	TENSION SPRING
29	REE2500	E WASHER
30	PQ41125A	PINCH ROLLER ASSY
31	PU53878	PINCH ROLLER CAP
32	SPSP2005Z	SCREW
33	PQ40845A-2	PINCH ROLLER ARM SUB ASSY
34	PQM30005-39	COLLAR
35	PQM30017-22	SLIT WASHER
36	PRD42146A	TENSION POLE ASSY
37	PQ40851A	TENSION BAND ASSY
38	REE2000	E WASHER
39	LPSP2606Z	SCREW
40	PRD42523	TENSION SPRING
41	PQ30269-1-5	CONTROL PLATE
42	PQM30017-22	SLIT WASHER, X2
43	PRD42422A	EJECT LEVER ASSY
43A	PQM30001-156	TENSION SPRING
43B	PQM30001-157	TENSION SPRING
44	PQ40858B	SEARCH BRAKE ASSY
45	PQ30270A-1	CAPSTAN BRAKE ASSY
45A	PQM30001-158	TENSION SPRING
46	PQM30017-23	SLIT WASHER

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	47	PQ40860A-2	REW BRAKE ASSY
	47A	PQM30001-159-5	TENSION SPRING
	48	PQ40862A-2	FF BRAKE ASSY
	48A	PQM30001-160-5	TENSION SPRING
	49	PQM30017-24	SLIT WASHER
	50	PGZ00894-01-01	SUPPLY REEL DISK
	51	PU57581	TAKE-UP REEL DISK
	52	PQM30017-22	SLIT WASHER, X2
	53	Q03093-827	SPACER, X2
	54	Q03093-834	WASHER, X2
	55	PGZ01257	CLUTCH MECANISM ASSY
	55A	PU56650-1-4	TU CLUTCH
	55B	PGZ01258	SUP CLUTCH
	55C	Q03093-827	SPACER, X3
	55D	PQM30017-2	SLIT WASHER, X3
	56	PQ41868-1-1	SPACER
	57	LPSP2608Z	SCREW, X4
	58	PRD42542A	MOTOR BRACKET. ASSY
	59	LPSP2604Z	ASSY SCREW
△	60	PGZ00665	CAPSTAN MOTOR ASSY
	61	LPSP2605Z	SCREW, X3
	62	PQM30003-12	BELT(CAPSTAN)
	63	PU49485-3	WIRE CLAMP
	64	PRD42131	GUIDE ROLLER
	65	Q03093-829	WASHER
	66	REE1500	E WASHER
	67	Q03093-830	WASHER

5.2.6 M6 Battery holder assembly



— Battery holder assembly parts list —

#	REF NO.	PART NO.	PART NAME, DESCRIPTION

***** 6. BATTERY HOLDER ASSY <M6> *****			
1	SC20357-001	BOTTOM CASE	
2	SC43575-001	SHEET(A)	
3	SC43576-001	SHEET(B), X2	
4	SC43577-001	RUBBER, X2	
5	PGD40847-01-01	SPRING	
6	SC43561-001	LOCK SCREW	
7	SC43567-002	HINGE, X2	
8	SSSP2004M	SCREW, X4	
9	SC20356-001	UPPER COVER	
10	SC43565-001	TERMINAL BASE	
Δ 11	SC43564-001	TERMINAL, X2	
12	SPSK2025M	MINI SCREW, X2	
13	SSSP2006M	SCREW, X3	
14	SC43563-001	LOCK KNOB	
15	PGD40848	LOCK SPRING	
16	SC43578-001	PIN	
17	SC43572-001	PLATE	
18	SDSP2004M	SCREW, X2	
19	SDSP3006M	SCREW, X4	
20	SC31071-001	COVER	
21	SC43570-001	LOCK KNOB	
22	SC43571-001	PLATE	
23	SPSK2004M	MINI SCREW	
24	NNS2000N	NUT	
25	PGD40849	SPRING	
26	SDSP2006M	SCREW	
27	SC43562-001	SHOE	
28	SSSP3006M	SCREW, X4	
29	PGD40910	GUIDE PIN	
30	SC43695-001	LABEL	
31	WNB2600N	WASHER, X4	
32	Q03093-817	SPACER	
33	WNB3000N	WASHER	
34	Q03093-817	SPACER	

SECTION 6

ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the  symbol are critical for safety. Replace only with specified part numbers.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

RESISTORS—All resistance values are in ohms (Ω), unless otherwise indicated.

k	: 1,000 (Kilo)
M	: 1,000,000 (Mega)
Chip R	: Chip Resistor
Chip VR	: Chip Variable Resistor
Comp. R	: Composition Resistor
CR	: Carbon Film Resistor
FR	: Fusible Resistor
MFR	: Metal Film Resistor
MPR	: Metal Plate Resistor
OMR	: Oxide Metal Film Resistor
PMR	: Precision Metal Film Resistor
UFR	: Unflammable Resistor
VR	: Variable Resistor (Potentiometer)
WR	: Wire Wound Resistor

CAPACITORS—All capacitance values are in μF , unless otherwise indicated.

pF	: $\mu\mu\text{F}$ (Pico farad)
C Cap	: Ceramic Capacitor
Chip Cap	: Chip Capacitor
Chip T Cap	: Chip Tantalum Capacitor
E Cap	: Electrolytic Capacitor
FM Cap	: Film Mica Capacitor
LL Cap	: Low Leak Current Electrolytic Capacitor
MM Cap	: Metalized Mylar Capacitor
MP Cap	: Metalized Paper Capacitor
MY Cap	: Mylar Capacitor
NP Cap	: Non-polar Capacitor
PC Cap	: Polycarbonate Capacitor
PP Cap	: Polypropylene Capacitor
PS Cap	: Polystyrol Capacitor
T Cap	: Tantalum Capacitor
TF Cap	: Thin Film Capacitor
TR Cap	: Trimmer Capacitor

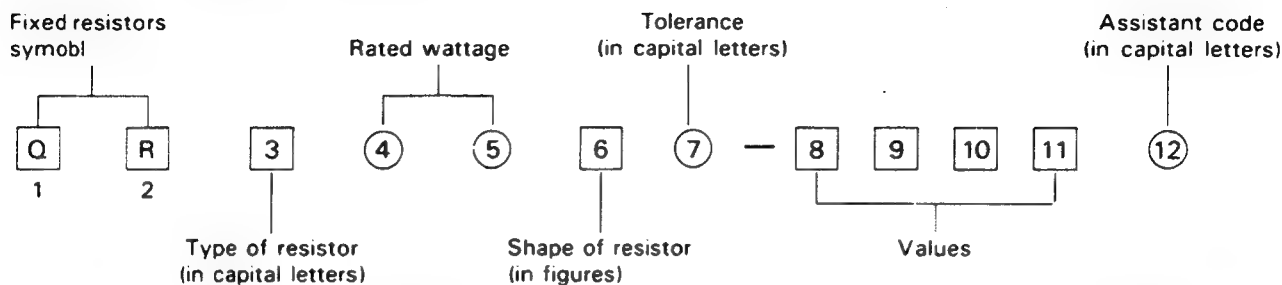
NOTES:

- [2 digits] indicates circuit board symbol number.
- "X " indicates quantity per set.

6.1 STANDARD PART NUMBER CODING

6.1.1 Fixed resistor coding

Fixed resistor part numbers are as follows.



Type of resistor (third digit)	Rated wattage (fourth and fifth digits)	Tolerance (seventh digit)	Assistant code (twelfth digit)
C Composition resistors	A0 1/10 W	F $\pm 1\%$	A Small type
D Carbon film resistors	18 1/8 W	G $\pm 2\%$	B Small type
F Unflammable resistors	16 1/6 W	J $\pm 5\%$	S Small type
G Oxide metal film resistors	14 1/4 W	K $\pm 10\%$	Y Lead taping
H Fusible resistors	12 1/2 W	M $\pm 20\%$	Z Lead taping
M Metal plate resistors	01 1 W		
S Metal glazed resistors	02 2 W		
V Precision metal film resistors	03 3 W		
W Wire wound resistors	04 4 W		
X Metal film resistors	05 5 W		
Z Special resistors	06 6 W		
	07 7 W		
	75 7.5 W		
	08 8 W		
	10 10 W		
	15 15 W		
	A6 16 W		
	20 20 W		
	30 30 W		

Values (eighth — tenth or eleventh digits)
examples:
R47 0.47 Ω
4R7 4.7 Ω
470 47×10^0 47 Ω
471 47×10^1 470 Ω
472 47×10^2 4.7 k Ω
473 47×10^3 47 k Ω
474 47×10^4 470 k Ω
475 47×10^5 4.7 M Ω

QRV resistance shown by four digits:

4640 464×10^0 464 Ω
4641 464×10^1 4.64 k Ω
4642 464×10^2 46.4 k Ω

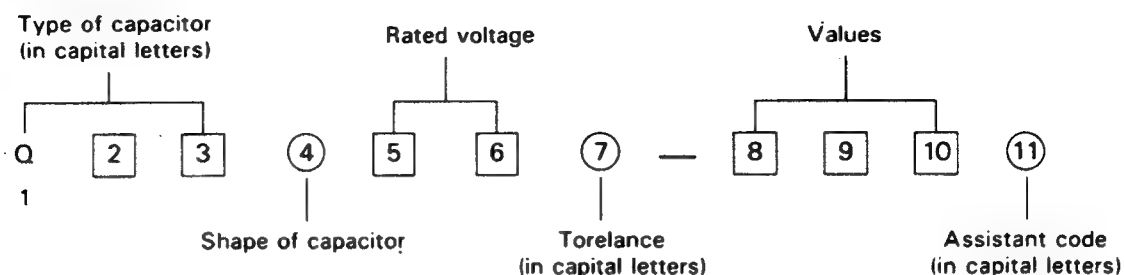
Shape of resistor (sixth digit)

Note: ■ indicates flame retardant resistor.

Type of resistor Shape of resistor	C	D	F	G	H	M	S	V	W	X
1										
2										
3										
4										
5									(L) type	
6										
7			Lug (B) type							
8			Lug (A) type							
9			Lug (C) type				Chip			

6.1.2 Fixed capacitor coding

Fixed capacitor part numbers are as follows.



Ceramic capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
		Mono-direction	Kink lead	Axial lead	Axial forming lead	Chip
QCC	Ceramic	1		4	5	
QCD	High capacitance					A
QCF	High capacitance	1,4	3			8,A
QCS	Temperature compensation	1	3	4	5	8,A
QCT	Temperature compensation	Special coding				
QCV	Ceramic			1	3	
QCX	Ceramic			1	3	
QCY	High capacitance	1,4	3	6	7	8,A
QCZ	Special type	Special coding				
QCB	Ceramic			B	C	

Electrolytic capacitors

Type of capacitor (first-third digits)		Shape of capacitor (fourth digit)				
		Tubular	Mono-direction	Anti-stress	Forming	Snap-in
QEB	Low leakage		4	5	6	
QEC	Low leakage		4,8,A	9,B	6,C	
QEE	Tantalum (normal)		4	5	6	
	Tantalum (small)		8			
QEF	Chip tantalum	8 (chip type)				
QEG	Low impedance		4			
QEK	Miniature type		4	5	6	
QEL	Small type		4	5	6	7
QEM	Small type		4,A	5	6	
QEN	Non-polar	2	4	5	6	
QEP	Non-polar (small)		4,A	5,B	6,C	
QER	Miniature type		4	5	6	
QET	Small type	2	4,A	5,B	6,C	7
QEU	Small type		4	5	6	
QEV	Small type		4		6	7
QEW	Normal	2	4	5	6	7

Paper film capacitors

Type of capacitor (first – third digits)		Shape of capacitor (fourth digit)				
		Tubular	Normal		Flame retardant	
Symbol	Characteristics		Mono-direction	Kink lead	Mono-direction	Kink lead
QFA	Metalized polypropylene				7	
QFE	Metalized mylar				5	
QFF	Film mica		4			
QFG	Polypropylene film		4	8		
QFH	Metalized mylar	2	4	3	5,7	6
QFJ	Mylar (special)		4			
QFK	Metalized mylar (small)				5	
QFM	Mylar	2	4	3,7	5	6
QFN	Mylar (small)		4	3		
QFP	Polypropylene		4	3,8		
QFS	Polystyrole	2	4	3		
QFV	Thin film		4	8		
QFZ	Special type	Special coding				

Rated voltage (fifth and sixth digits)

Fifth digit \ Sixth digit													
	A	B	C	D	E	F	G	H	J	K	V	W	X
0						3.15	4.0		6.3				
1	10		16	20	25		40	50	63	80	35		
2	100	125	160	200	250	315	400	500	630		350	450	600
3	1000	1250		2000				5000					

Tolerance (seventh digit)

A	+100 % -10 %	M	±20 %
F	±1 %	N	±30 %
G	±2 %	P	+100 % -0 %
H	+50 % -10 %	R	+30 % -10 %
J	±5 %	X	+40 % -20 %
K	±10 %	Z	+80 % -20 %

Values (eighth – tenth digits)

Example : Values are in picofarads

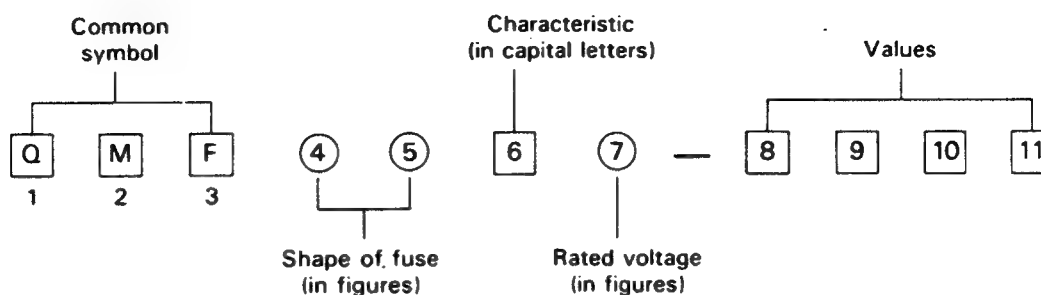
101	.....10 × 10 ¹ pF	100 pF
102	.....10 × 10 ² pF	1,000 pF (0.001 μF)
103	.....10 × 10 ³ pF	10,000 pF (0.01 μF)
104	.....10 × 10 ⁴ pF	100,000 pF (0.1 μF)
105	.....10 × 10 ⁵ pF	1 μF
5R0	.....	5.0 pF

Assistant code (eleventh digit)

G	Small size
Z	Lead tapping
Y	Lead tapping

6.1.3 Fuse coding

Standard fuse part numbers are as follows.



Shape of fuse (fourth and fifth digits)

51	φ5.2 × 20 mm
60	φ6.4 × 30 mm
61	φ6.35 × 31.8 mm
63	φ6.4 × 30 mm with lead wires
66	φ6.35 × 31.8 mm with lead wires
00	Special type

Rated voltage (seventh digit)

1	AC125 V
2	AC250 V
3	0.1 – 1 A : AC250 V 1.25 – 6.3 A : AC125 V

Values (eighth-tenth or eleventh digits) example:

R63	..... 0.63 A
1R0	..... 1.0 A
2R5	..... 2.5 A
100	..... 10 A
R315	..... 0.315 A
1R25	..... 1.25 A

Characteristics (sixth digit)

Symbol	Fusing Current	Fusing Time	Remarks
A	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 – 10 sec.	
	400 %	0.15 – 3 sec.	
	1000 %	0.02 – 0.3 sec.	
B	210 %	Within 30 min.	Regular fusible type (for SEMKO, Europe)
	275 %	0.05 – 2 sec.	
	400 %	0.01 – 0.3 sec.	
C	135 %	Within 1 hr.	Regular fusible type (for UL, Japan)
	200 %	Within 2 min.	
E	210 %	Within 2 min.	Anti-rush type (for Europe)
	275 %	0.6 – 10 sec.	
	400 %	0.15 – 3 sec.	
	1000 %	0.02 – 0.3 sec.	
J	135 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
M	135 %	Within 1 hr.	Regular fusible type (for UL)
	200 %	Within 2 min.	
R	160 %	Within 1 hr.	Regular fusible type
	200 %	Within 2 min.	
S	160 %	Within 1 hr.	Anti-rush type
	200 %	Within 2 min.	
	700 % – 2000 %	Within 0.01 sec.	
U	135 %	Within 1 hr.	Anti-rush type (for UL)
	200 %	Within 2 min.	
	800 % – 2000 %	Within 0.01 sec.	

6.2 ELECTRICAL PARTS LIST BY ASSEMBLY

#	REF NO.	PART NO.	PART NAME, DESCRIPTION

***** 6.2.1 VIDEO BOARD ASSY 01 *****			

PWBA	PRK10008A-01	VIDEO BOARD ASSY	
IC1	VC2031MP	IC	
IC2	AN6308S	IC	
IC3	AN6308S	IC	
IC4	M51647FP	IC	
IC5	AN6393	IC	
IC6	AN6308S	IC	
IC7	AN6308S	IC	
IC8	VC2074	IC	
MOD1	PU22282B	Y MODULE BOARD ASSY	
MOD2	PB20008A	Y MODULE BOARD ASSY	
IC10	CXL1004P	IC	
IC12	BA401	IC	
IC13	AN6392	IC	
IC23	TA7348P	IC	
IC24	TC4538BF	IC	
Q1	2SC2778C	TRANSISTOR	
Q2	DTC144EK	TRANSISTOR	
Q4	2SC2778C	TRANSISTOR	
Q5	2SC2778C	TRANSISTOR	
Q6	2SC2778C	TRANSISTOR	
Q7	2SC2778C	TRANSISTOR	
Q8	2SC2778C	TRANSISTOR	
Q9	2SC2778C	TRANSISTOR	
Q10	2SC2778C	TRANSISTOR	
Q11	2SA1022C	TRANSISTOR	
Q13	2SD601A(QR)	TRANSISTOR	
Q14	2SA1022C	TRANSISTOR	
Q15	2SC2778C	TRANSISTOR	
Q16	2SC2778C	TRANSISTOR	
Q18	2SA1022C	TRANSISTOR	
Q19	2SC2778C	TRANSISTOR	
Q21	2SA1022C	TRANSISTOR	
Q22	2SC2778C	TRANSISTOR	
Q23	2SC2778C	TRANSISTOR	
Q24	2SC2778C	TRANSISTOR	
Q25	2SC2778C	TRANSISTOR	
Q26	2SA1022C	TRANSISTOR	
Q27	2SC2778C	TRANSISTOR	
Q29	2SA1022C	TRANSISTOR	
Q30	2SC2778C	TRANSISTOR	
Q32	2SC2778C	TRANSISTOR	
Q33	2SA1022C	TRANSISTOR	
Q34	DTA114EK	TRANSISTOR	
Q35	DTC144EK	TRANSISTOR	
Q36	DTC144EK	TRANSISTOR	
Q37	2SC2778C	TRANSISTOR	
Q38	2SA1022C	TRANSISTOR	
Q39	2SC2778C	TRANSISTOR	
Q40	2SC2778C	TRANSISTOR	
Q41	2SA1022C	TRANSISTOR	
Q42	2SC2778C	TRANSISTOR	
Q43	2SC2778C	TRANSISTOR	
Q44	2SC2778C	TRANSISTOR	
Q45	2SC2778C	TRANSISTOR	
Q46	2SC2778C	TRANSISTOR	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION

Q47	DTC144EK	TRANSISTOR	
Q48	2SA1022C	TRANSISTOR	
Q49	DTA144EK	TRANSISTOR	
Q50	DTA144EK	TRANSISTOR	
Q54	2SC2778C	TRANSISTOR	
Q55	2SC2778C	TRANSISTOR	
Q56	2SC2778C	TRANSISTOR	
Q57	2SB709A(QR)	TRANSISTOR	
Q58	2SC2778C	TRANSISTOR	
Q59	2SA1022C	TRANSISTOR	
Q60	2SB709A(QR)	TRANSISTOR	
Q61	2SD601A(QR)	TRANSISTOR	
Q62	DTC144EK	TRANSISTOR	
Q63	2SC2778C	TRANSISTOR	
Q65	2SC2778C	TRANSISTOR	
Q66	DTA144WK	TRANSISTOR	
Q68	2SC2778C	TRANSISTOR	
Q69	2SC2778C	TRANSISTOR	
Q70	2SA1022C	TRANSISTOR	
Q71	2SC2778C	TRANSISTOR	
Q74	2SC2778C	TRANSISTOR	
Q75	2SA1022C	TRANSISTOR	
Q76	2SA1022C	TRANSISTOR	
Q77	2SC2778C	TRANSISTOR	
Q78	2SA1022C	TRANSISTOR	
Q80	2SA1022C	TRANSISTOR	
Q82	DTC144EF	TRANSISTOR	
Q83	2SB643R,S	TRANSISTOR	
Q84	2SB643R,S	TRANSISTOR	
Q85	DTC144EF	TRANSISTOR	
Q87	2SB643R,S	TRANSISTOR	
Q89	DTC144EF	TRANSISTOR	
Q90	2SB643R,S	TRANSISTOR	
Q93	2SC2778C	TRANSISTOR	
Q94	2SA1022C	TRANSISTOR	
Q101	2SC2778C	TRANSISTOR	
Q102	2SD601A(QR)	TRANSISTOR	
Q103	2SD601A(QR)	TRANSISTOR	
Q106	2SC2778C	TRANSISTOR	
Q109	2SA1022C	TRANSISTOR	
Q110	2SC2778C	TRANSISTOR	
Q113	DTC144EK	TRANSISTOR	
Q114	DTC144EK	TRANSISTOR	
Q115	2SC2778C	TRANSISTOR	
Q116	2SC2778C	TRANSISTOR	
Q117	2SA1022C	TRANSISTOR	
Q118	2SA1022C	TRANSISTOR	
Q119	2SC2778C	TRANSISTOR	
Q120	2SA1022C	TRANSISTOR	
Q121	2SA1022C	TRANSISTOR	
Q122	DTC144EK	TRANSISTOR	
Q131	2SA1022C	TRANSISTOR	
Q501	DTC144EK	TRANSISTOR	
Q503	2SC2778C	TRANSISTOR	
Q504	2SC2778C	TRANSISTOR	
Q505	2SC2778C	TRANSISTOR	
Q550	2SC2778C	TRANSISTOR	
Q551	DTC144EK	TRANSISTOR	
Q552	DTC144EK	TRANSISTOR	
Q553	DTC144EK	TRANSISTOR	
Q554	2SC2778C	TRANSISTOR	
Q555	2SA1022C	TRANSISTOR	

*△ REF NO.	PART NO.	PART NAME, DESCRIPTION
Q556	2SC2778C	TRANSISTOR
Q557	DTC144EK	TRANSISTOR
Q560	DTC124EF	TRANSISTOR
D1	1SS133	DIODE
D2	1SS133	DIODE
D3	1SS133	DIODE
D4	1SS133	DIODE
D8	1SS133	DIODE
D9	1SS99	DIODE
D10	1SS99	DIODE
D14	DAN202K	CHIP DIODE ARRAY
D15	DAN202K	CHIP DIODE ARRAY
D16	1SS99	DIODE
D17	1SS99	DIODE
D18	1SS133	DIODE
D19	1SS133	DIODE
D51	1SS133	DIODE
D52	1SS133	DIODE
D53	1SS99	DIODE
D54	1SS99	DIODE
D55	1SS133	DIODE
D57	1SS133	DIODE
D58	1SS133	DIODE
D60	1SS99	DIODE
D61	DAN202K	CHIP DIODE ARRAY
D64	1SS133	DIODE
R1	QRSA08J-394YN	RESISTOR
R3	QRSA08J-223YN	RESISTOR
R4	QRSA08J-222YN	RESISTOR
R5	QRSA08J-333YN	RESISTOR
R6	QRSA08J-333YN	RESISTOR
R7	QRSA08J-102YN	RESISTOR
R8	QRSA08J-222YN	RESISTOR
R9	QRSA08J-560YN	RESISTOR
R10	QRSA08J-103YN	RESISTOR
R11	QRSA08J-681YN	RESISTOR
R12	QRSA08J-122YN	RESISTOR
R13	QRSA08J-273YN	RESISTOR
R14	QRSA08J-223YN	RESISTOR
R16	QRSA08J-821YN	RESISTOR
R17	QVZ3531-473	V RESISTOR
R20	PUS9237-473	V RESISTOR
R21	QRSA08J-223YN	RESISTOR
R22	QRSA08J-392YN	RESISTOR
R23	QRSA08J-222YN	RESISTOR
R24	QRSA08J-561YN	RESISTOR
R25	QRSA08J-122YN	RESISTOR
R26	QRSA08J-102YN	RESISTOR
R27	QRSA08J-102YN	RESISTOR
R28	QRSA08J-182YN	RESISTOR
R29	QRSA08J-122YN	RESISTOR
R30	QRSA08J-182YN	RESISTOR
R31	QRSA08J-102YN	RESISTOR
R34	QRSA08J-681YN	RESISTOR
R35	PUS9237-331	V RESISTOR
R36	QRSA08F-272YN	RESISTOR
R37	QRSA08F-102YN	RESISTOR
R38	QRSA08F-272YN	RESISTOR
R39	QRSA08F-152YN	RESISTOR
R40	QRSA08F-471YN	RESISTOR
R41	QRSA08F-102YN	RESISTOR
R42	QRSA08J-104YN	RESISTOR
R43	QVZ3531-103	V RESISTOR
R44	QRSA08F-102YN	RESISTOR
R45	QRSA08F-471YN	RESISTOR

*△ REF NO.	PART NO.	PART NAME, DESCRIPTION
R46	QRSA08F-102YN	RESISTOR
R47	QRSA08F-332YN	RESISTOR
R48	QRSA08F-152YN	RESISTOR
R49	QRSA08F-332YN	RESISTOR
R50	QRSA08F-102YN	RESISTOR
R51	QRSA08J-331YN	RESISTOR
R52	QVZ3531-222	V RESISTOR
R53	QRSA08J-223YN	RESISTOR
R54	QRSA08J-182YN	RESISTOR
R56	QRSA08J-122YN	RESISTOR
R59	QRSA08J-122YN	RESISTOR
R61	QRSA08J-182YN	RESISTOR
R63	QRSA08J-122YN	RESISTOR
R65	QRSA08J-152YN	RESISTOR
R68	QRSA08J-223YN	RESISTOR
R69	QRSA08J-223YN	RESISTOR
R70	QRSA08J-222YN	RESISTOR
R71	QRSA08J-122YN	RESISTOR
R72	QRSA08J-561YN	RESISTOR
R73	QRSA08J-101YN	RESISTOR
R74	QRSA08J-102YN	RESISTOR
R75	QRSA08J-103YN	RESISTOR
R76	QRSA08J-223YN	RESISTOR
R77	QRSA08J-102YN	RESISTOR
R78	QRSA08J-102YN	RESISTOR
R79	PUS9237-102	V RESISTOR
R80	QRSA08J-0R0Y	RESISTOR
R81	QRSA08J-103YN	RESISTOR
R82	QRSA08J-223YN	RESISTOR
R83	QRSA08J-102YN	RESISTOR
R84	QRSA08J-102YN	RESISTOR
R85	QRSA08J-103YN	RESISTOR
R86	QRSA08J-223YN	RESISTOR
R87	PUS9237-102	V RESISTOR
R88	QRSA08J-0R0Y	RESISTOR
R89	QRSA08J-223YN	RESISTOR
R90	QRSA08J-103YN	RESISTOR
R91	QRSA08J-102YN	RESISTOR
R92	QRSA08J-102YN	RESISTOR
R93	QRSA08J-223YN	RESISTOR
R94	QRSA08J-223YN	RESISTOR
R95	QRSA08J-102YN	RESISTOR
R96	QRSA08J-102YN	RESISTOR
R97	PUS9237-152	V RESISTOR
R98	QRSA08J-331YN	RESISTOR
R103	QRSA08J-102YN	RESISTOR
R104	QRSA08J-223YN	RESISTOR
R105	QRSA08J-223YN	RESISTOR
R106	QRSA08J-102YN	RESISTOR
R107	QRSA08J-102YN	RESISTOR
R108	PUS9237-152	V RESISTOR
R109	QRSA08J-102YN	RESISTOR
R114	QRSA08J-102YN	RESISTOR
R115	QRSA08J-102YN	RESISTOR
R116	QRSA08J-223YN	RESISTOR
R117	QRSA08J-223YN	RESISTOR
R118	QRSA08J-103YN	RESISTOR
R119	QRSA08J-103YN	RESISTOR
R120	QRSA08J-223YN	RESISTOR
R121	QRSA08J-681YN	RESISTOR
R122	QRSA08J-223YN	RESISTOR
R123	QRSA08J-681YN	RESISTOR
R124	QRSA08J-223YN	RESISTOR
R127	QRSA08J-223YN	RESISTOR
R128	QRSA08J-102YN	RESISTOR
R129	QVZ3531-471	V RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R130	QRSA08J-561YN	RESISTOR
R131	QRSA08J-103YN	RESISTOR
R132	QRSA08J-183YN	RESISTOR
R133	QRSA08J-103YN	RESISTOR
R134	QRSA08J-103YN	RESISTOR
R135	QRSA08J-223YN	RESISTOR
R136	QRSA08J-102YN	RESISTOR
R137	QRSA08J-183YN	RESISTOR
R138	QRSA08J-182YN	RESISTOR
R140	QRSA08J-122YN	RESISTOR
R141	QRSA08J-222YN	RESISTOR
R142	QRSA08J-681YN	RESISTOR
R143	QRSA08J-222YN	RESISTOR
R144	QVZ3531-222	V RESISTOR
R145	QRSA08J-681YN	RESISTOR
R146	QRSA08J-273YN	RESISTOR
R147	QRSA08J-223YN	RESISTOR
R149	QRSA08J-102YN	RESISTOR
R150	QRSA08J-222YN	RESISTOR
R151	QRSA08J-681YN	RESISTOR
R152	QRSA08J-222YN	RESISTOR
R153	QVZ3531-222	V RESISTOR
R154	QRSA08J-471YN	RESISTOR
R155	QRSA08J-273YN	RESISTOR
R156	QRSA08J-223YN	RESISTOR
R157	QRSA08J-222YN	RESISTOR
R158	QRSA08J-331YN	RESISTOR
R159	QRSA08J-102YN	RESISTOR
R160	QRSA08J-272YN	RESISTOR
R161	QRSA08J-102YN	RESISTOR
R162	QRSA08J-103YN	RESISTOR
R163	QRSA08J-273YN	RESISTOR
R164	QRSA08J-103YN	RESISTOR
R165	QRSA08J-223YN	RESISTOR
R166	QRSA08J-331YN	RESISTOR
R167	QVZ3531-222	V RESISTOR
R168	QRSA08J-103YN	RESISTOR
R169	QRSA08J-103YN	RESISTOR
R170	QRSA08J-562YN	RESISTOR
R171	QRSA08J-332YN	RESISTOR
R172	QRSA08J-272YN	RESISTOR
R176	QRSA08J-223YN	RESISTOR
R177	QRSA08J-223YN	RESISTOR
R178	QRSA08J-223YN	RESISTOR
R179	QRSA08J-223YN	RESISTOR
R188	QRSA08J-105YN	RESISTOR
R189	QVZ3531-102	V RESISTOR
R190	QRSA08J-223YN	RESISTOR
R191	QRSA08J-333YN	RESISTOR
R194	QRSA08J-271YN	RESISTOR
R195	QRSA08J-122YN	RESISTOR
R196	PU59237-102	V RESISTOR
R197	QRSA08J-273YN	RESISTOR
R198	QRSA08J-103YN	RESISTOR
R199	QRSA08J-102YN	RESISTOR
R200	QRSA08J-102YN	RESISTOR
R201	QRSA08J-152YN	RESISTOR
△ R202	QRSA08J-272YN	RESISTOR
△ R203	QRSA08J-182YN	RESISTOR
R204	QRSA08J-561YN	RESISTOR
R205	QRD167J-680	RESISTOR
R206	QRSA08J-223YN	RESISTOR
R207	QRSA08J-563YN	RESISTOR
R208	QRSA08J-222YN	RESISTOR
R209	QRSA08J-152YN	RESISTOR
R210	QRSA08J-102YN	RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R211	QRSA08J-101YN	RESISTOR
R212	QRD167J-0R0	RESISTOR
R213	QVZ3531-331	V RESISTOR
R214	QRSA08J-392YN	RESISTOR
R215	QRSA08J-330YN	RESISTOR
R216	QRSA08J-103YN	RESISTOR
R217	QRSA08J-5R6YN	RESISTOR
R218	QRSA08J-470YN	RESISTOR
R221	QRSA08J-391YN	RESISTOR
R222	QRSA08J-152YN	RESISTOR
R224	QRSA08J-104YN	RESISTOR
R225	QRSA08J-103YN	RESISTOR
R226	QRSA08J-471YN	RESISTOR
R227	QRSA08J-393YN	RESISTOR
R228	QRSA08J-103YN	RESISTOR
R238	QRSA08J-102YN	RESISTOR
R239	PU59237-222	V RESISTOR
R240	QRSA08J-332YN	RESISTOR
R241	QRSA08J-152YN	RESISTOR
R242	QRSA08J-561YN	RESISTOR
R243	QRSA08J-183YN	RESISTOR
R244	QRSA08J-473YN	RESISTOR
R245	QRSA08J-222YN	RESISTOR
R246	PU59237-222	V RESISTOR
R247	QRSA08J-152YN	RESISTOR
R248	QRSA08J-101YN	RESISTOR
R249	QRSA08J-222YN	RESISTOR
R255	QRSA08J-183YN	RESISTOR
R256	QRSA08J-333YN	RESISTOR
R257	QRSA08J-102YN	RESISTOR
R258	PU59237-222	V RESISTOR
R259	QRSA08J-102YN	RESISTOR
R300	QRSA08J-102YN	RESISTOR
R301	QRSA08J-122YN	RESISTOR
R302	QRSA08J-563YN	RESISTOR
R303	QRSA08J-273YN	RESISTOR
R304	QRSA08J-821YN	RESISTOR
R305	QRSA08J-182YN	RESISTOR
R306	QRSA08J-222YN	RESISTOR
R307	QRSA08J-101YN	RESISTOR
R308	QRSA08J-222YN	RESISTOR
R309	QRSA08J-102YN	RESISTOR
R310	QRSA08J-222YN	RESISTOR
R314	QRD167J-750	RESISTOR
R315	QRSA08J-101YN	RESISTOR
R316	QRSA08J-392YN	RESISTOR
R320	QRSA08J-103YN	RESISTOR
R321	QRSA08J-223YN	RESISTOR
R322	QRSA08J-102YN	RESISTOR
R323	QRSA08J-681YN	RESISTOR
R332	QRSA08J-473YN	RESISTOR
R333	QRSA08J-393YN	RESISTOR
R334	QRSA08J-223YN	RESISTOR
△ R335	QRSA08J-680YN	RESISTOR
R336	QRSA08J-330YN	RESISTOR
R337	QRSA08J-682YN	RESISTOR
△ R338	QRSA08J-333YN	RESISTOR
R339	QRSA08J-561YN	RESISTOR
R341	QRSA08J-102YN	RESISTOR
R345	QRSA08J-102YN	RESISTOR
R346	QRSA08J-102YN	RESISTOR
R347	QRSA08J-332YN	RESISTOR
R355	QRSA08J-102YN	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R356	QRSA08J-102YN	RESISTOR
	R357	QRSA08J-272YN	RESISTOR
	R358	QRSA08J-272YN	RESISTOR
	R359	QRSA08J-102YN	RESISTOR
	R360	QRSA08J-562YN	RESISTOR
	R361	QRSA08J-103YN	RESISTOR
	R362	QRSA08J-223YN	RESISTOR
	R363	QRSA08J-102YN	RESISTOR
	R364	QRSA08J-103YN	RESISTOR
	R365	QRSA08J-223YN	RESISTOR
	R366	QRSA08J-102YN	RESISTOR
	R367	QRSA08J-100YN	RESISTOR
	R368	QRSA08J-102YN	RESISTOR
	R370	QRSA08J-102YN	RESISTOR
	R371	QRSA08J-181YN	RESISTOR
	R372	QRSA08J-102YN	RESISTOR
	R373	QRSA08J-181YN	RESISTOR
	R374	QRSA08J-102YN	RESISTOR
	R376	QRSA08J-392YN	RESISTOR
	R377	QRSA08J-102YN	RESISTOR
	R378	QRSA08J-562YN	RESISTOR
	R379	QRSA08J-821YN	RESISTOR
	R380	QRSA08J-102YN	RESISTOR
	R382	QRSA08J-103YN	RESISTOR
	R383	QRSA08J-181YN	RESISTOR
	R384	QRSA08J-102YN	RESISTOR
	R385	QRSA08J-181YN	RESISTOR
	R386	QRSA08J-102YN	RESISTOR
	R388	QRSA08J-222YN	RESISTOR
△	R400	PU52108-100K	POSITIVE THERMISTOR
	R401	ERT-D2FHL-332S	THERMISTOR
	R402	QRD161J-0R0	RESISTOR
	R405	QRSA08J-102YN	RESISTOR
	R406	QRSA08J-822YN	RESISTOR
	R407	QRSA08J-472YN	RESISTOR
	R408	QRSA08J-272YN	RESISTOR
	R409	QRSA08J-103YN	RESISTOR
	R410	QRSA08J-822YN	RESISTOR
	R411	PU59237-332	V RESISTOR
	R412	QRSA08J-102YN	RESISTOR
	R414	QRSA08J-102YN	RESISTOR
	R418	QRSA08J-681YN	RESISTOR
	R419	QRSA08J-102YN	RESISTOR
	R421	QRSA08J-102YN	RESISTOR
	R424	QRSA08J-331YN	RESISTOR
	R426	QRSA08J-333YN	RESISTOR
	R427	QRD167J-335	RESISTOR
	R431	QRSA08J-561YN	RESISTOR
	R432	QRSA08J-271YN	RESISTOR
	R433	QRSA08J-0R0Y	RESISTOR
	R436	QRSA08J-102YN	RESISTOR
	R437	QRSA08J-102YN	RESISTOR
	R438	QRSA08J-331YN	RESISTOR
	R501	QRSA08J-335YN	RESISTOR
	R502	QRSA08J-335YN	RESISTOR
	R503	QRSA08J-102YN	RESISTOR
	R504	QRSA08J-122YN	RESISTOR
	R505	QRSA08J-561YN	RESISTOR
	R506	QRSA08J-221YN	RESISTOR
	R507	QRSA08J-332YN	RESISTOR
	R508	QRSA08J-152YN	RESISTOR
	R509	QRSA08J-101YN	RESISTOR
	R510	QRSA08J-152YN	RESISTOR
	R512	QRSA08F-152YN	RESISTOR
	R514	QRSA08J-102YN	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R515	QRSA08J-103YN	RESISTOR
	R516	QRSA08J-475YN	RESISTOR
△	R517	QRD161J-391	RESISTOR
	R518	QRSA08J-561YN	RESISTOR
	R519	QRD161J-0R0	RESISTOR
	R520	QRSA08J-392YN	RESISTOR
	R521	QRD161J-0R0	RESISTOR
	R522	QRD161J-392	RESISTOR
	R523	ERT-D2FGL101S	THERMISTOR
	R524	QRSA08J-101YN	RESISTOR
	R525	QRD161J-124	RESISTOR
	R527	QRSA08J-182YN	RESISTOR
	R550	QRSA08J-103YN	RESISTOR
	R551	QRSA08J-223YN	RESISTOR
	R552	QRSA08J-102YN	RESISTOR
	R554	PU59237-474	V RESISTOR
	R555	QRSA08J-104YN	RESISTOR
	R556	QRSA08J-0R0Y	RESISTOR
	R558	QRSA08J-823YN	RESISTOR
	R559	QRSA08J-222YN	RESISTOR
	R560	QRSA08J-222YN	RESISTOR
	R561	QRSA08J-472YN	RESISTOR
	R562	PU59237-473	V RESISTOR
	R563	ERT-D2FFL400S	THERMISTOR
	R564	QRSA08J-181YN	RESISTOR
	R565	QRSA08J-332YN	RESISTOR
	R566	QRSA08J-103YN	RESISTOR
	R567	QRSA08J-103YN	RESISTOR
	R568	QRSA08J-473YN	RESISTOR
	R580	QRD161J-0R0	RESISTOR
	R581	QRD161J-103	RESISTOR
	R582	QRD161J-682	RESISTOR
	R583	ERT-D2FHK-153S	THERMISTOR
	R585	QRD161J-680	RESISTOR
	R587	QRD161J-680	RESISTOR
	C3	QCSA1HJ-270	CAPACITOR
	C5	QER41HM-335	E CAPACITOR
	C7	QER41HM-225	E CAPACITOR
	C8	QER41EM-475	E CAPACITOR
	C9	QEK40JM-337	E CAPACITOR
	C10	QCYA1HK-223	CAPACITOR
	C11	QER41CM-106	E CAPACITOR
	C12	QER40JM-476	E CAPACITOR
	C13	QER41CM-106	E CAPACITOR
	C14	QER40GM-476	E CAPACITOR
	C15	QER41HM-225	E CAPACITOR
	C16	QER41EM-335	E CAPACITOR
	C17	QCYA1HK-103	CAPACITOR
	C18	QCSA1HJ-561	CAPACITOR
	C19	QER41HM-105	E CAPACITOR
	C20	QCYA1HK-103	CAPACITOR
	C21	QCSA1HJ-560	CAPACITOR
	C22	QCYA1HK-223	CAPACITOR
	C23	QEK40JM-337	E CAPACITOR
	C26	QER41HM-335	E CAPACITOR
	C27	QCYA1HK-223	CAPACITOR
	C28	QEK40JM-337	E CAPACITOR
	C29	QER41HM-225	E CAPACITOR
	C30	QEE40JM-476	E CAPACITOR
	C31	QCYA1HK-223	CAPACITOR
	C33	QER41CM-476	E CAPACITOR
	C34	QCYA1HK-223	CAPACITOR
	C35	QER40JM-476	E CAPACITOR
	C36	QCTA2CH-271	CAPACITOR

#Δ	REF NO.	PART NO.	PART NAME, DESCRIPTION
C37		QCTA2CH-271	CAPACITOR
C38		QCTA2CH-820	CAPACITOR
C39		QCTA2CH-221	CAPACITOR
C40		QCTA2CH-271	CAPACITOR
C41		QCTA2CH-820	CAPACITOR
C42		QCTA2CH-271	CAPACITOR
C43		QCTA2CH-271	CAPACITOR
C44		QCTA2CH-221	CAPACITOR
C45		QEE40JM-476	E CAPACITOR
C46		QCYA1HK-223	CAPACITOR
C47		QER41EM-226	E CAPACITOR
C48		QER40JM-476	E CAPACITOR
C49		QER41EM-475	E CAPACITOR
C50		QER41EM-475	E CAPACITOR
C51		QER40JM-476	E CAPACITOR
C52		QCYA1HK-223	CAPACITOR
C56		QER40JM-476	E CAPACITOR
C57		QCYA1HK-223	CAPACITOR
C58		QER40JM-476	E CAPACITOR
C59		QCYA1HK-223	CAPACITOR
C60		QER40JM-476	E CAPACITOR
C61		QER41EM-475	E CAPACITOR
C62		QCYA1HK-223	CAPACITOR
C63		QER40JM-476	E CAPACITOR
C64		QCYA1HK-103	CAPACITOR
C65		QCYA1HK-103	CAPACITOR
C67		QCSA1HJ-121	CAPACITOR
C68		QCSA1HJ-121	CAPACITOR
C69		QCYA1HK-103	CAPACITOR
C70		QCYA1HK-103	CAPACITOR
C71		QCYA1HK-223	CAPACITOR
C72		QER40JM-476	E CAPACITOR
C73		QCYA1HK-223	CAPACITOR
C74		QCYA1HK-223	CAPACITOR
C75		QCYA1HK-103	CAPACITOR
C76		QCYA1HK-223	CAPACITOR
C77		QER41CM-476	E CAPACITOR
C78		QCYA1HK-103	CAPACITOR
C79		QCSA1HJ-151	CAPACITOR
C82		QCYA1HK-103	CAPACITOR
C83		QCSA1HJ-151	CAPACITOR
C86		QCYA1HK-103	CAPACITOR
C87		QCYA1HK-103	CAPACITOR
C88		QCYA1HK-103	CAPACITOR
C89		QCYA1HK-103	CAPACITOR
C91		QER40JM-476	E CAPACITOR
C92		QCYA1HK-223	CAPACITOR
C93		QCYA1HK-103	CAPACITOR
C94		QER41EM-475	E CAPACITOR
C95		QEE41EM-475	TANTAL CAPACITOR
C96		QER40JM-476	E CAPACITOR
C97		QCYA1HK-223	CAPACITOR
C99		QER40JM-476	E CAPACITOR
C100		QER41CM-476	E CAPACITOR
C101		QER40JM-476	E CAPACITOR
C102		QER40JM-476	E CAPACITOR
C103		QEE40JM-476	E CAPACITOR
C104		QCYA1HK-223	CAPACITOR
C105		QCYA1HK-103	CAPACITOR
C106		QCYA1HK-103	CAPACITOR
C107		QEE41EM-475	TANTAL CAPACITOR
C108		QER40JM-476	E CAPACITOR
C109		QCYA1HK-223	CAPACITOR
C111		QCSA1HJ-561	CAPACITOR
C112		QCSA1HJ-151	CAPACITOR
C113		QCSA1HJ-330	CAPACITOR

#Δ	REF NO.	PART NO.	PART NAME, DESCRIPTION
C114		QCYA1HK-103	CAPACITOR
C115		QCYA1HK-223	CAPACITOR
C118		QER40JM-476	E CAPACITOR
C119		QCYA1HK-223	CAPACITOR
C120		QCSA1HJ-270	CAPACITOR
C121		QCYA1HK-103	CAPACITOR
C122		QCYA1HK-223	CAPACITOR
C123		QCSA1HJ-680	CAPACITOR
C124		QCYA1HK-223	CAPACITOR
C125		QCYA1HK-223	CAPACITOR
C126		QER41HM-104	E CAPACITOR
C127		QCSA1HJ-560	CAPACITOR
C128		QER40JM-476	E CAPACITOR
C129		QCYA1HK-223	CAPACITOR
C130		QER40JM-476	E CAPACITOR
C131		QCYA1HK-223	CAPACITOR
C132		QER40JM-476	E CAPACITOR
C133		QCYA1HK-103	CAPACITOR
C134		QER40JM-476	E CAPACITOR
C135		QER41EM-475	E CAPACITOR
C136		QER40JM-476	E CAPACITOR
C137		QER40JM-476	E CAPACITOR
C138		QCYA1HK-223	CAPACITOR
C139		QER40JM-476	E CAPACITOR
C140		QCYA1HK-103	CAPACITOR
C141		QER41EM-475	E CAPACITOR
C142		QER40JM-476	E CAPACITOR
C143		QER40JM-476	E CAPACITOR
C144		QCYA1HK-223	CAPACITOR
C145		QER40JM-476	E CAPACITOR
C146		QCYA1HK-223	CAPACITOR
C147		QER41EM-475	E CAPACITOR
C149		QER40JM-476	E CAPACITOR
C150		QCYA1HK-223	CAPACITOR
C156		QEE41VM-105	TANTAL CAPACITOR
C157		QCYA1HK-223	CAPACITOR
C158		QER41CM-476	E CAPACITOR
C159		QER41EM-335	E CAPACITOR
C160		QER41EM-335	E CAPACITOR
C161		QER41CM-106	E CAPACITOR
C162		QER41CM-106	E CAPACITOR
C164		QER41EM-335	E CAPACITOR
C165		QCSA1HJ-101	CAPACITOR
C166		QER41CM-476	E CAPACITOR
C167		QCYA1HK-223	CAPACITOR
C168		QER41CM-476	E CAPACITOR
C170		QER40JM-476	E CAPACITOR
C171		QCYA1HK-223	CAPACITOR
C172		QCYA1HK-223	CAPACITOR
C173		QER41CM-476	E CAPACITOR
C174		QFN41HJ-103	M CAPACITOR
C175		QER40JM-476	E CAPACITOR
C176		PU54990-3	E CAPACITOR
C177		QER40JM-107	E CAPACITOR
C178		QCYA1HK-223	CAPACITOR
C179		QER41CM-476	E CAPACITOR
C180		QCYA1HK-223	CAPACITOR
C181		QCYA1HK-223	CAPACITOR
C183		QCSA1HJ-820	CAPACITOR
C184		QCYA1HK-223	CAPACITOR
C185		QCSA1HJ-180	CAPACITOR
C186		QCSA1HJ-120	CAPACITOR
C187		QCYA1HK-103	CAPACITOR
C189		QER41EM-106	E CAPACITOR
C190		QER41HM-105	E CAPACITOR
C191		QCYA1HK-223	CAPACITOR

#Δ REF NO.	PART NO.	PART NAME, DESCRIPTION	#Δ REF NO.	PART NO.	PART NAME, DESCRIPTION
C192	QER41CM-476	E CAPACITOR	C512	QCSA1HJ-270	CAPACITOR
C195	QER41CM-476	E CAPACITOR	C513	QCSA1HJ-680	CAPACITOR
C196	QCYA1HK-223	CAPACITOR	C514	QCSA1HJ-270	CAPACITOR
C198	QER41CM-106	E CAPACITOR	C515	QER40JM-476	E CAPACITOR
C199	QER41CM-106	E CAPACITOR	C516	QER40JM-107	E CAPACITOR
C200	QER41CM-476	E CAPACITOR	C518	QCSA1HJ-151	CAPACITOR
			C519	QCYA1HK-103	CAPACITOR
C201	QER41CM-476	E CAPACITOR	C522	QCSA1HJ-180	CAPACITOR
C206	QER41CM-106	E CAPACITOR	C523	QCSA1HJ-180	CAPACITOR
C207	QER41CM-476	E CAPACITOR	C524	QCYA1HK-103	CAPACITOR
C208	QCYA1HK-223	CAPACITOR	C525	QCYA1HK-102	CAPACITOR
C209	QER40GM-476	E CAPACITOR	C526	QCSA1HJ-9R0	CAPACITOR
C210	QER41CM-476	E CAPACITOR	C527	QCSA1HJ-560	CAPACITOR
			C529	QCYA1HK-103	CAPACITOR
C211	QCYA1HK-223	CAPACITOR	C550	QCYA1HK-223	CAPACITOR
C212	QER41CM-106	E CAPACITOR			
C213	PU54990-3	E CAPACITOR	C552	QER41HM-474	E CAPACITOR
C214	QCYA1HK-223	CAPACITOR	C553	QCYA1HK-472	CAPACITOR
C215	QER41CM-476	E CAPACITOR	C554	QCYA1HK-223	CAPACITOR
C217	QER40JM-476	E CAPACITOR	C555	QEK40JM-476	E CAPACITOR
C218	QER40JM-476	E CAPACITOR	C556	QEK41CM-106	E CAPACITOR
C219	QCYA1HK-223	CAPACITOR	C557	QEK41CM-476	E CAPACITOR
C220	QCYA1HK-103	CAPACITOR	C558	QCYA1HK-223	CAPACITOR
			C559	QCYA1HK-223	CAPACITOR
C221	QCYA1HK-103	CAPACITOR	C560	QEK41CM-106	E CAPACITOR
C224	QER41CM-106	E CAPACITOR			
C225	QCYA1HK-223	CAPACITOR	C561	QCSA1HJ-151	CAPACITOR
C229	QER40JM-476	E CAPACITOR	C562	QEK41CM-106	E CAPACITOR
C230	QER41HM-225	E CAPACITOR	C570	QCS11HJ-330	CAPACITOR
C231	QER41HM-225	E CAPACITOR			
C234	QER41HM-225	E CAPACITOR	C571	QCS11HJ-100	CAPACITOR
C235	QCSA1HJ-220	CAPACITOR	C572	QEE40JM-476	TANTAL CAPACITOR
C236	QER41HM-105	E CAPACITOR	C574	QCS11HJ-100	CAPACITOR
C237	QCSA1HJ-101	CAPACITOR			
C238	QER41EM-475	E CAPACITOR	L2	PU53618-471J	COIL
			L4	PGZ00638-101	COIL
C241	QCYA1HK-223	CAPACITOR	L5	PU53223-121J	COIL
C242	QCYA1HK-223	CAPACITOR	L6	PU53223-101J	COIL
C243	QCSA1HJ-470	CAPACITOR	L8	PGZ00638-101	COIL
C244	QER41CM-106	E CAPACITOR	L9	PU53223-560J	COIL
			L10	PGZ00638-101	COIL
C253	QCSA1HJ-220	CAPACITOR			
C254	QCSA1HJ-151	CAPACITOR	L11	PGZ00638-101	COIL
C300	QER41EM-475	E CAPACITOR	L12	PGZ00638-101	COIL
			L13	PGZ00638-101	COIL
C301	QER40JM-476	E CAPACITOR	L16	PGZ00638-101	COIL
C302	QCYA1HK-103	CAPACITOR	L17	PGZ00638-101	COIL
C303	QCSA1HJ-220	CAPACITOR	L18	PGZ00638-101	COIL
C304	QCSA1HJ-101	CAPACITOR	L19	PU53223-560J	COIL
C307	QCSA1HJ-220	CAPACITOR	L20	PGZ00638-101	COIL
C309	QCSA1HJ-100	CAPACITOR			
C310	QCSA1HJ-121	CAPACITOR	L21	PGZ00638-101	COIL
			L22	PGZ00638-101	COIL
C311	QCSA1HJ-680	CAPACITOR	L23	PU53223-101J	COIL
C314	QER41HM-225	E CAPACITOR	L24	PGZ00638-101	COIL
C315	QCYA1HK-103	CAPACITOR	L25	PGZ00638-101	COIL
C319	QCYA1HK-103	CAPACITOR	L27	PU53223-101J	COIL
C320	QCSA1HJ-150	CAPACITOR	L28	PU53223-180J	COIL
			L29	PGZ00638-101	COIL
C324	QCSA1HJ-221	CAPACITOR			
			L31	PU53223-560J	COIL
C501	QCYA1HK-102	CAPACITOR	L32	PGZ00638-101	COIL
C502	QCSA1HJ-560	CAPACITOR	L33	PGZ00638-101	COIL
C503	QCYA1HK-223	CAPACITOR	L34	PGZ00638-101	COIL
C504	QER40JM-476	E CAPACITOR	L35	PGZ00638-101	COIL
C505	QCYA1HK-223	CAPACITOR	L36	PGZ00638-101	COIL
C506	QER41CM-476	E CAPACITOR	L37	PGZ00638-101	COIL
C507	QCTA1CH-151	CAPACITOR	L38	PGZ00638-101	COIL
C508	QER41HM-105	E CAPACITOR	L40	PGZ00638-101	COIL
C509	QER41HM-105	E CAPACITOR			
C510	QCSA1HJ-470	CAPACITOR	L41	PGZ00638-101	COIL
			L42	PGZ00638-101	COIL
C511	QCSA1HJ-470	CAPACITOR			

01 02

#A REF NO. PART NO. PART NAME, DESCRIPTION

L43	PGZ00638-101	COIL
L44	PGZ00638-101	COIL
L45	PGZ00638-101	COIL
L46	PGZ00638-101	COIL
L47	PU53618-5R6J	COIL
L48	PU53618-4R7J	COIL
L49	PGZ00638-101	COIL
L50	PGZ00638-101	COIL

L52	PGZ00638-101	COIL
L53	PGZ00638-101	COIL
L54	PGZ00638-101	COIL
L56	PGZ00638-101	COIL
L59	PU53223-100J	COIL

L61	PU53618-331J	COIL
L62	PU53223-820J	COIL
L67	PU53223-181J	COIL

L502	PU53223-470J	COIL
L503	PU53223-180J	COIL
L504	PU53223-121J	COIL
L505	PU53223-151J	C.COIL
L506	PU53223-680J	COIL
L507	PU53223-151J	C.COIL
L508	PU53618-471J	COIL
L509	PGZ00638-101	COIL
L510	PU48530-3R3K	COIL

L511	PU48530-3R3K	COIL
L512	PU48530-680J	COIL

L551	PGZ00638-101	COIL
L552	PGZ00638-101	COIL
L553	PU48530-5R6J	COIL

LPF1	PGZ00952	LOW PASS FILTER, (LPF1-1)
LPF2	PGZ00953	LOW PASS FILTER, (LPF1-2)
LPF3	PGZ00693	LOW PASS FILTER
LPF4	PGZ00799	LOW PASS FILTER, (LPF2-1)
LPF5	PGZ00800	LOW PASS FILTER, (LPF2-2)

DL1	PGZ01058	DELAY LINE
-----	----------	------------

A X1	PGZ00957	CRYSTAL RESONATOR
------	----------	-------------------

K1	PGZ00627Z	CHIP FELITE, X7 (K1-K7)
----	-----------	-------------------------

CN12, 14	PGZ00698-20	BOARD TO BOARD
CN13, 15	PGZ00698-24	BOARD TO BOARD

HD1	PGZ00606	BOARD HOLDER, X2
-----	----------	------------------

SPC1	PGZ00605	BOARD SPACER, X2
------	----------	------------------

VA1	PU49624-2	VARIATOR
-----	-----------	----------

CN1	PU58844-109	CAP HOUSING
CN2	PU58844-111Y	CAP HOUSING
CN3	PU58844-104	CAP HOUSING
CN4	PU58844-108R	CAP HOUSING
CN5	PU58844-106	CAP HOUSING
CN6	PU58844-9	CAP HOUSING
CN7	PU58844-105	CAP HOUSING
CN8	PU58844-112	CAP HOUSING
CN9	PU58844-112R	CAP HOUSING
CN10	PU58844-109	CAP HOUSING

#A REF NO. PART NO. PART NAME, DESCRIPTION

CN16	YU40960-16	CONNECTOR
CN17	YU40960-16	CONNECTOR

-VIDEO SUB 1 BOARD ASSY-

PWBA1	PGE20167A1-01	VIDEO SUB 1 BOARD ASSY
-------	---------------	------------------------

Q107	2SA1022C	TRANSISTOR
Q108	2SC2778C	TRANSISTOR

R348	QRSA08J-102YN	RESISTOR
R349	QRSA08J-122YN	RESISTOR
R350	QRSA08J-102YN	RESISTOR

R351	QRSA08J-101YN	RESISTOR
R352	QRSA08J-222YN	RESISTOR
R353	QRSA08J-123YN	RESISTOR
R354	QRSA08J-223YN	RESISTOR

-VIDEO SUB 2 BOARD ASSY-

PWBA2	PGE20167A2-01	VIDEO SUB 2 BOARD ASSY
-------	---------------	------------------------

Q126	2SC2778C	TRANSISTOR
------	----------	------------

R415	QRSA08J-682YN	RESISTOR
R416	QRSA08J-101YN	RESISTOR
R417	PU59237-103	V RESISTOR

C250	QCSA1HJ-102	CAPACITOR
------	-------------	-----------

C251	QCYA1HK-223	CAPACITOR
------	-------------	-----------

TP1	PU56008	TEST-PIN, X36
-----	---------	---------------

 * 6.2.2 COLOR BOARD ASSY 02 *

PWBA	PRK20032A-01	COLOR BOARD ASSY
------	--------------	------------------

IC1	AN6308S	IC
IC2	AN6308S	IC
IC3	BA7233	IC
IC4	AN6308S	IC
A IC5	AN6367S	IC
IC6	MN6163AS	IC
IC7	AN6308S	IC

Q1	DTA144EK	TRANSISTOR
Q2	2SC2778C	TRANSISTOR
Q3	2SC2778C	TRANSISTOR
Q4	2SC2778C	TRANSISTOR
Q5	2SC2778C	TRANSISTOR
Q6	2SC2778C	TRANSISTOR
Q7	2SC2778C	TRANSISTOR
Q8	2SA1022C	TRANSISTOR
Q9	2SD601A(QR)	TRANSISTOR
Q10	2SC2778C	TRANSISTOR

Q11	2SC2778C	TRANSISTOR
Q12	2SC2778C	TRANSISTOR
Q13	2SC2778C	TRANSISTOR
Q14	DTA144EK	TRANSISTOR
Q15	2SC2778C	TRANSISTOR
Q16	2SC2778C	TRANSISTOR
Q17	2SA1022C	TRANSISTOR
Q18	2SC2778C	TRANSISTOR
Q19	2SC2778C	TRANSISTOR
Q20	2SC2778C	TRANSISTOR

#A	REF NO.	PART NO.	PART NAME, DESCRIPTION	#A	REF NO.	PART NO.	PART NAME, DESCRIPTION
Q21		2SC2778C	TRANSISTOR	R34		QRSA08J-560YN	RESISTOR
Q23		2SC2778C	TRANSISTOR	R35		QRSA08J-222YN	RESISTOR
Q24		2SC2778C	TRANSISTOR	R36		QRSA08J-122YN	RESISTOR
Q25		2SC2778C	TRANSISTOR	R37		QRSA08J-271YN	RESISTOR
Q26		DTC144EK	TRANSISTOR	R38		QVZ3531-472	V RESISTOR
Q27		2SC2778C	TRANSISTOR	R39		QRSA08J-101YN	RESISTOR
Q28		2SA1022C	TRANSISTOR	R40		QRSA08J-471YN	RESISTOR
Q29		2SC2778C	TRANSISTOR	R41		QRSA08J-122YN	RESISTOR
Q30		2SC2778C	TRANSISTOR	R42		QRSA08J-223YN	RESISTOR
Q31		2SC2778C	TRANSISTOR	R43		QRSA08J-103YN	RESISTOR
Q32		2SC2778C	TRANSISTOR	R44		QVZ3531-222	V RESISTOR
Q33		2SC2778C	TRANSISTOR	R45		QRSA08J-102YN	RESISTOR
Q34		2SC2778C	TRANSISTOR	R46		QRSA08J-152YN	RESISTOR
Q35		2SC2778C	TRANSISTOR	R47		QRSA08J-103YN	RESISTOR
Q36		2SC2778C	TRANSISTOR	R48		QRSA08J-473YN	RESISTOR
Q37		DTA144EK	TRANSISTOR	R49		QRSA08J-103YN	RESISTOR
Q38		DTC144EK	TRANSISTOR	R50		QRSA08J-152YN	RESISTOR
Q39		2SC2778C	TRANSISTOR	R51		QVZ3531-332	V RESISTOR
Q40		2SA1022C	TRANSISTOR	R52		QVZ3531-102	V RESISTOR
Q41		2SC2778C	TRANSISTOR	R53		QRSA08J-102YN	RESISTOR
Q42		2SC2778C	TRANSISTOR	R54		QRSA08J-102YN	RESISTOR
Q43		2SC2778C	TRANSISTOR	R55		QRSA08J-183YN	RESISTOR
Q44		DTC144EK	TRANSISTOR	R56		QRSA08J-103YN	RESISTOR
Q45		2SC2778C	TRANSISTOR	R57		QRSA08J-102YN	RESISTOR
Q46		2SA1022C	TRANSISTOR	R58		QRSA08J-472YN	RESISTOR
Q47		2SC2778C	TRANSISTOR	R59		QRSA08J-151YN	RESISTOR
Q48		2SK621	FE TRANSISTOR	R60		QRSA08J-561YN	RESISTOR
Q49		2SK621	FE TRANSISTOR	R61		QVZ3531-473	V RESISTOR
Q50		2SK621	FE TRANSISTOR	R62		QRSA08J-103YN	RESISTOR
Q51		2SC2778C	TRANSISTOR	R63		QRSA08J-104YN	RESISTOR
D1		DAN202K	CHIP DIODE ARRAY	R64		QRSA08J-182YN	RESISTOR
D2		DAN202K	CHIP DIODE ARRAY	R65		QRSA08J-332YN	RESISTOR
R1		QRSA08J-562YN	RESISTOR	R66		QRSA08J-822YN	RESISTOR
R2		QRSA08J-183YN	RESISTOR	R67		QRSA08J-152YN	RESISTOR
R3		QRSA08J-103YN	RESISTOR	R68		QRSA08J-682YN	RESISTOR
R4		QRSA08J-102YN	RESISTOR	R69		QRSA08J-682YN	RESISTOR
R5		QRSA08J-102YN	RESISTOR	R70		QRSA08J-152YN	RESISTOR
R6		QRSA08J-102YN	RESISTOR	R71		QRSA08J-103YN	RESISTOR
R7		QRSA08J-103YN	RESISTOR	R72		QRSA08J-103YN	RESISTOR
R8		QRSA08J-183YN	RESISTOR	R73		QRSA08J-333YN	RESISTOR
R9		QRSA08J-222YN	RESISTOR	R74		QRSA08J-103YN	RESISTOR
R10		QRSA08J-103YN	RESISTOR	R75		QRSA08J-103YN	RESISTOR
R11		QRSA08J-103YN	RESISTOR	R76		QRSA08J-273YN	RESISTOR
R12		QRSA08J-222YN	RESISTOR	R77		QRSA08J-393YN	RESISTOR
R13		QRSA08J-561YN	RESISTOR	R78		QRSA08J-682YN	RESISTOR
R14		QRSA08J-273YN	RESISTOR	R79		QRSA08J-223YN	RESISTOR
R15		QRSA08J-183YN	RESISTOR	R80		QRSA08J-682YN	RESISTOR
R16		QRSA08J-102YN	RESISTOR	R81		QRSA08J-102YN	RESISTOR
R17		QRSA08J-102YN	RESISTOR	R82		QRSA08J-562YN	RESISTOR
R18		QRSA08J-222YN	RESISTOR	R83		QRSA08J-331YN	RESISTOR
R19		QRSA08J-103YN	RESISTOR	R84		QRSA08J-562YN	RESISTOR
R20		QRSA08J-183YN	RESISTOR	R85		QRSA08J-103YN	RESISTOR
R21		QRSA08J-222YN	RESISTOR	R86		QRSA08J-103YN	RESISTOR
R22		QRSA08J-102YN	RESISTOR	R87		QRSA08J-682YN	RESISTOR
R23		QRSA08J-102YN	RESISTOR	R88		QRSA08J-103YN	RESISTOR
R24		QRSA08J-152YN	RESISTOR	R89		QRSA08J-123YN	RESISTOR
R25		QRSA08J-103YN	RESISTOR	R90		QRSA08J-102YN	RESISTOR
R26		QRSA08J-183YN	RESISTOR	R91		QRSA08J-181YN	RESISTOR
R27		QRSA08J-561YN	RESISTOR	R92		QRSA08J-103YN	RESISTOR
R28		QRSA08J-471YN	RESISTOR	R93		QRSA08J-333YN	RESISTOR
R29		QRSA08J-122YN	RESISTOR	R94		QRSA08J-272YN	RESISTOR
R30		QRSA08J-183YN	RESISTOR	R95		QRSA08J-681YN	RESISTOR
R31		QRSA08J-822YN	RESISTOR	R96		QRSA08J-331YN	RESISTOR
R32		QVZ3531-102	V RESISTOR	R97		QRSA08J-223YN	RESISTOR
R33		QRSA08J-561YN	RESISTOR	R98		QRSA08J-102YN	RESISTOR
				R99		QRSA08J-223YN	RESISTOR
				R100		QRSA08J-103YN	RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R101 QRSA08J-102YN RESISTOR
 R102 QRSA08J-561YN RESISTOR
 R103 QRSA08J-151YN RESISTOR
 R104 QRSA08J-333YN RESISTOR
 R105 QRSA08J-223YN RESISTOR
 R106 QRSA08J-102YN RESISTOR
 R107 QRSA08J-102YN RESISTOR
 R108 QVZ3531-102 V RESISTOR
 R109 QRSA08J-102YN RESISTOR
 R110 QRSA08J-102YN RESISTOR

R111 QRSA08J-102YN RESISTOR
 R112 QVZ3531-102 V RESISTOR
 R113 QRSA08J-102YN RESISTOR
 R114 QRSA08J-103YN RESISTOR
 R115 QRSA08J-682YN RESISTOR
 R116 QRSA08J-561YN RESISTOR
 R117 QRSA08J-102YN RESISTOR
 R118 QRSA08J-562YN RESISTOR
 R119 QVZ3531-102 V RESISTOR
 R120 QVZ3531-222 V RESISTOR

R121 QRSA08J-473YN RESISTOR
 R122 QRSA08J-473YN RESISTOR
 R123 QRSA08J-103YN RESISTOR
 R124 QRSA08J-222YN RESISTOR
 R125 QRSA08J-103YN RESISTOR
 R126 QRSA08J-223YN RESISTOR
 R127 QRSA08J-223YN RESISTOR
 R128 QRSA08J-103YN RESISTOR
 R129 QRSA08J-103YN RESISTOR
 R130 QRSA08J-183YN RESISTOR

R131 QRSA08J-102YN RESISTOR
 R132 QRSA08J-561YN RESISTOR
 R133 QRSA08J-273YN RESISTOR
 R134 QRSA08J-103YN RESISTOR
 R135 QRSA08J-102YN RESISTOR
 R136 QRSA08J-223YN RESISTOR
 R137 QRSA08J-102YN RESISTOR
 R138 QRSA08J-560YN RESISTOR
 R139 QRSA08J-223YN RESISTOR
 R140 QRSA08J-223YN RESISTOR

R141 QRSA08J-102YN RESISTOR
 R142 QRSA08J-222YN RESISTOR
 R143 QRSA08J-102YN RESISTOR
 R144 QRSA08J-272YN RESISTOR
 R145 QRSA08J-272YN RESISTOR
 R146 QRSA08J-272YN RESISTOR
 R147 QRSA08J-222YN RESISTOR
 R148 QRD161J-151 RESISTOR

C1 QCYA1HK-223 CAPACITOR
 C2 QCYA1HK-223 CAPACITOR
 C3 QCYA1HK-223 CAPACITOR
 C4 QCYA1HK-103 CAPACITOR
 C5 QCYA1HK-103 CAPACITOR
 C6 QCYA1HK-223 CAPACITOR
 C7 QCYA1HK-223 CAPACITOR
 C8 QER41CM-106 E CAPACITOR
 C9 QCYA1HK-223 CAPACITOR
 C10 QCYA1HK-223 CAPACITOR

C11 QER40JM-476 E CAPACITOR
 C12 QCYA1HK-223 CAPACITOR
 C13 QCYA1HK-223 CAPACITOR
 C14 QCYA1HK-223 CAPACITOR
 C15 QCYA1HK-223 CAPACITOR
 C16 QCYA1HK-223 CAPACITOR
 C17 QCYA1HK-223 CAPACITOR
 C18 QER40JM-476 E CAPACITOR
 C19 QCYA1HK-223 CAPACITOR
 C20 QCYA1HK-223 CAPACITOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

C21 QEE41CM-106 TANTAL CAPACITOR
 C22 QCYA1HK-223 CAPACITOR
 C23 QER40JM-476 E CAPACITOR
 C24 QCYA1HK-223 CAPACITOR
 C25 QER41HM-105 E CAPACITOR
 C26 QER40JM-476 E CAPACITOR
 C27 QCYA1HK-223 CAPACITOR
 C28 QCYA1HK-103 CAPACITOR
 C29 QCYA1HK-103 CAPACITOR
 C30 QCSA1HJ-101 CAPACITOR

C31 QCYA1HK-103 CAPACITOR
 C32 QCYA1HK-223 CAPACITOR
 C33 QCYA1HK-223 CAPACITOR
 C34 QER40JM-476 E CAPACITOR
 C35 QCYA1HK-223 CAPACITOR
 C36 QCYA1HK-103 CAPACITOR
 C37 QCYA1HK-102 CAPACITOR
 C38 QCTA1CH-151 CAPACITOR
 C40 QCYA1HK-223 CAPACITOR

C41 QCYA1HK-103 CAPACITOR
 C42 QCYA1HK-103 CAPACITOR
 C43 QER41HM-104 E CAPACITOR
 C44 QCYA1HK-103 CAPACITOR
 C45 QCYA1HK-183 CAPACITOR
 C46 QER41HM-105 E CAPACITOR
 C48 QCYA1HK-682 CAPACITOR
 C49 QER41EM-475 E CAPACITOR
 C50 QEE41CM-335 T CAPACITOR

C51 QER40JM-476 E CAPACITOR
 C52 QCYA1HK-102 CAPACITOR
 A C54 QAT3001-011 TRIMMER CAPACITOR
 C55 QCYA1HK-223 CAPACITOR
 C56 QCYA1HK-223 CAPACITOR
 C57 QER40JM-107 E CAPACITOR
 C58 QCYA1HK-223 CAPACITOR
 C59 QCSA1HJ-680 CAPACITOR
 C60 QCYA1HK-223 CAPACITOR

C63 QER40JM-107 E CAPACITOR
 C64 QCYA1HK-223 CAPACITOR
 C65 QCYA1HK-223 CAPACITOR
 C67 QCYA1HK-472 CAPACITOR
 C68 QCYA1HK-103 CAPACITOR
 C69 QCSA1HJ-470 CAPACITOR
 C70 QCYA1HK-103 CAPACITOR

C71 QER41HM-105 E CAPACITOR
 C72 QCYA1HK-223 CAPACITOR
 C73 QCYA1HK-103 CAPACITOR
 C74 QCYA1HK-562 CAPACITOR
 C75 QCSA1HJ-220 CAPACITOR
 C76 QCF41EZ-473 CAPACITOR
 C77 QCYA1HK-103 CAPACITOR
 C78 QCSA1HJ-151 CAPACITOR
 C79 QCYA1HK-223 CAPACITOR
 C80 QER40JM-476 E CAPACITOR

C81 QCYA1HK-223 CAPACITOR
 C82 QCSA1HJ-101 CAPACITOR
 C84 QCYA1HK-223 CAPACITOR
 C85 QCYA1HK-103 CAPACITOR
 C86 QCYA1HK-223 CAPACITOR
 C87 QCYA1HK-223 CAPACITOR
 C88 QER40JM-476 E CAPACITOR
 C89 QCYA1HK-223 CAPACITOR
 C90 QCYA1HK-102 CAPACITOR

C91 QCYA1HK-102 CAPACITOR
 C92 QER41CM-106 E CAPACITOR
 C93 QER41CM-106 E CAPACITOR

CN1	PU58844-112	CAP HOUSING
CN2	PU58844-112R	CAP HOUSING
CN3	PU58844-102	CAP HOUSING
CN4	PGZ00723-10	CONNECTOR
CN5	PGZ00723-11	CONNECTOR
CN6	PU51945-08	CAP HOUSING
CN7	PU51945-07	CAP HOUSING

* 6.2.3 SERVO BOARD ASSY 03 *

D11	DA204K	DIODE
D12	DAN202K	DIODE
D13	110Q04	DIODE
D14	1S2473	DIODE
D15	DAN202K	DIODE
D16	DAP202K	DIODE

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
R1	QRSA08J-103YN	RESISTOR
R2	QRSA08J-102YN	RESISTOR
R3	QRSA08J-684YN	RESISTOR
R4	QRSA08J-332YN	RESISTOR
R5	QRSA08J-331YN	RESISTOR
R6	QRSA08J-222YN	RESISTOR
R7	QRSA08J-103YN	RESISTOR
R8	QRSA08J-821YN	RESISTOR
R9	QRSA08J-102YN	RESISTOR
R10	QRSA08J-103YN	RESISTOR
R12	QRSA08J-224YN	RESISTOR
R13	QRSA08J-684YN	RESISTOR
R14	QRSA08J-103YN	RESISTOR
R15	QRSA08J-103YN	RESISTOR
R16	QRSA08J-103YN	RESISTOR
R17	QRSA08J-472YN	RESISTOR
R18	QRSA08J-103YN	RESISTOR
R19	QRSA08J-683YN	RESISTOR
R20	QRSA08J-223YN	RESISTOR
R21	QRSA08J-223YN	RESISTOR
R22	QRSA08J-223YN	RESISTOR
R23	QRSA08J-223YN	RESISTOR
R24	QRSA08J-223YN	RESISTOR
R25	QRSA08J-103YN	RESISTOR
R26	QRSA08J-223YN	RESISTOR
R27	QVZ3531-104	V RESISTOR , DRUM DISCRI
R28	QRSA08J-224YN	RESISTOR
R29	QRSA08J-104YN	RESISTOR
R30	QRSA08J-822YN	RESISTOR
R31	QRSA08J-223YN	RESISTOR
R32	QRSA08J-103YN	RESISTOR
R33	QRSA08J-472YN	RESISTOR
R34	QRSA08J-563YN	RESISTOR
R35	QRSA08J-564YN	RESISTOR
R36	QRSA08J-682YN	RESISTOR
R37	QRSA08J-123YN	RESISTOR
R38	QRSA08J-103YN	RESISTOR
R39	QRSA08J-102YN	RESISTOR
R40	QRSA08J-223YN	RESISTOR
R41	QRSA08J-102YN	RESISTOR
R42	QRSA08J-103YN	RESISTOR
R43	QRSA08J-223YN	RESISTOR
R44	QRSA08J-223YN	RESISTOR
R45	QVZ3531-153	V RESISTOR , H DISCRI
R46	QRSA08J-513YN	RESISTOR
R47	QRD167J-472	RESISTOR
R48	QRSA08J-184YN	RESISTOR
R49	QVZ3531-473	V RESISTOR , CAP DISCRI
R50	QRSA08J-823YN	RESISTOR
R51	QRSA08J-823YN	RESISTOR
R52	QRSA08J-222YN	RESISTOR
R53	QRSA08J-334YN	RESISTOR
R54	QRSA08J-333YN	RESISTOR
R55	QRSA08J-103YN	RESISTOR
R56	QRSA08J-104YN	RESISTOR
R57	QRSA08J-105YN	RESISTOR
R58	QRSA08J-103YN	RESISTOR
R59	QRSA08J-102YN	RESISTOR
R60	QRSA08J-103YN	RESISTOR
R61	QRSA08J-123YN	RESISTOR
R62	QRSA08J-222YN	RESISTOR
R63	QRSA08J-222YN	RESISTOR
R64	QRSA08J-102YN	RESISTOR
R65	QRSA08J-222YN	RESISTOR
R66	QRSA08J-102YN	RESISTOR
R67	QRSA08J-272YN	RESISTOR
R68	QRSA08J-272YN	RESISTOR

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
R69	QRSA08J-272YN	RESISTOR
R70	QRSA08J-222YN	RESISTOR
R71	QRSA08J-393YN	RESISTOR
R73	QRSA08J-224YN	RESISTOR
R74	QRSA08J-682YN	RESISTOR
△ R75	QRSA08J-0R0Y	RESISTOR
R76	QRSA08J-153YN	RESISTOR
R77	QRSA08J-153YN	RESISTOR
R78	QRSA08J-392YN	RESISTOR
R79	QRSA08J-103YN	RESISTOR
R80	PGZ00956	RESISTOR ARRAY
R81	QRSA08J-563YN	RESISTOR
R82	QRSA08J-103YN	RESISTOR
R83	QRSA08J-102YN	RESISTOR
R84	QRSA08J-104YN	RESISTOR
R85	QRSA08J-103YN	RESISTOR
R86	QRSA08J-333YN	RESISTOR
R87	QRSA08J-102YN	RESISTOR
R88	QRSA08J-332YN	RESISTOR
R89	QRSA08J-333YN	RESISTOR
R90	QRSA08J-562YN	RESISTOR
R91	QRSA08J-334YN	RESISTOR
R92	QRSA08J-472YN	RESISTOR
R93	QRSA08J-222YN	RESISTOR
R95	QRSA08J-682YN	RESISTOR
R96	QRSA08J-103YN	RESISTOR
R97	QRSA08J-103YN	RESISTOR
R98	QRSA08J-105YN	RESISTOR
R99	QRSA08J-331YN	RESISTOR
R100	QRSA08J-103YN	RESISTOR
R101	QRSA08J-103YN	RESISTOR
R102	QRSA08J-104YN	RESISTOR
R103	QVZ3531-474	V RESISTOR , CH2 SW POS
R104	QRSA08J-104YN	RESISTOR
R105	QVZ3531-474	V RESISTOR , CH1 SW POS
R106	QRSA08J-104YN	RESISTOR
R107	QRSA08J-103YN	RESISTOR
R108	QRSA08J-223YN	RESISTOR
R110	QRSA08J-223YN	RESISTOR
R111	QRSA08J-223YN	RESISTOR
R112	QRSA08J-473YN	RESISTOR
R113	QVZ3531-224	V RESISTOR , V P WIDTH
R114	QVZ3531-224	V RESISTOR , H PDELAY
R115	QRSA08J-103YN	RESISTOR
R116	QRSA08F-394YN	RESISTOR
R117	QRSA08F-394YN	RESISTOR
R118	QRSA08J-223YN	RESISTOR
R119	QRSA08J-223YN	RESISTOR
R120	QRSA08J-223YN	RESISTOR
R121	QRSA08J-102YN	RESISTOR
R122	QRSA08J-102YN	RESISTOR
R123	QRSA08J-223YN	RESISTOR
R124	QRSA08J-223YN	RESISTOR
R125	QRSA08J-824YN	RESISTOR
R126	QRSA08J-684YN	RESISTOR
R127	QVZ3531-474	V RESISTOR , -X1 SUB TR
R128	QRSA08J-103YN	RESISTOR
R129	QRSA08J-394YN	RESISTOR
R130	QRSA08J-223YN	RESISTOR
R131	QRSA08J-334YN	RESISTOR
R132	QRSA08J-104YN	RESISTOR
R133	QRSA08J-393YN	RESISTOR
R134	QRSA08J-224YN	RESISTOR
R135	QRSA08J-102YN	RESISTOR
R136	QRSA08J-153YN	RESISTOR
R137	QRSA08J-103YN	RESISTOR
R138	QVZ3531-103	V RESISTOR , SUB TR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R139	QRSA08J-103YN	RESISTOR
	R141	QRSA08J-223YN	RESISTOR
	R142	QRSA08J-393YN	RESISTOR
	R143	QRSA08J-333YN	RESISTOR
	R144	QRSA08J-104YN	RESISTOR
	R145	QRSA08J-473YN	RESISTOR
	R147	QVZ3531-104	V RESISTOR , REC SW POS-1
	R148	QRSA08J-105YN	RESISTOR
	R149	QRSA08J-394YN	RESISTOR
△	R150	QRSA08J-104YN	RESISTOR
	R151	QRSA08J-223YN	RESISTOR
	R152	QRSA08J-103YN	RESISTOR
	R153	QRSA08J-103YN	RESISTOR
	R154	QRSA08J-682YN	RESISTOR
	R155	QRSA08J-823YN	RESISTOR
	R156	QRSA08J-103YN	RESISTOR
	R157	QRSA08J-272YN	RESISTOR
	R158	QRSA08J-824YN	RESISTOR
	R159	QRSA08J-564YN	RESISTOR
	R160	QRSA08J-105YN	RESISTOR
	R161	QRSA08J-334YN	RESISTOR
	R162	QRSA08J-103YN	RESISTOR
	R163	QRSA08J-473YN	RESISTOR
	R164	QRSA08J-684YN	RESISTOR
	R165	QRSA08J-103YN	RESISTOR
	R166	QRSA08J-474YN	RESISTOR
	R167	QRSA08J-103YN	RESISTOR
	R168	QRSA08J-103YN	RESISTOR
	R169	QRSA08J-103YN	RESISTOR
	R170	QRSA08J-105YN	RESISTOR
	R171	QRSA08J-563YN	RESISTOR
	R172	QRSA08J-0R0Y	RESISTOR
	R173	QRSA08J-222YN	RESISTOR
	R174	QRSA08J-123YN	RESISTOR
	R175	QRSA08J-123YN	RESISTOR
	R176	QRSA08J-103YN	RESISTOR
	R177	QRSA08J-123YN	RESISTOR
	R178	QRSA08J-223YN	RESISTOR
	R179	QRSA08J-103YN	RESISTOR
	R180	QRSA08J-123YN	RESISTOR
	R181	QRSA08J-331YN	RESISTOR
	R182	QRSA08J-122YN	RESISTOR
	R183	QRSA08J-273YN	RESISTOR
	R184	QRSA08J-472YN	RESISTOR
	R185	QRSA08J-104YN	RESISTOR
	R186	QRSA08J-104YN	RESISTOR
	R187	QRSA08J-224YN	RESISTOR
	R188	QRSA08J-224YN	RESISTOR
	R189	QRSA08J-103YN	RESISTOR
	R190	QRSA08J-103YN	RESISTOR
	R191	QRSA08J-153YN	RESISTOR
	R192	QRSA08J-103YN	RESISTOR
	R193	QRSA08J-0R0Y	RESISTOR
	R195	QRSA08J-102YN	RESISTOR
	R196	QRSA08J-102YN	RESISTOR
	R197	QRSA08J-102YN	RESISTOR
	R198	QRSA08J-102YN	RESISTOR
	R199	QRSA08J-102YN	RESISTOR
	R200	QRSA08J-102YN	RESISTOR
	R201	QRSA08J-102YN	RESISTOR
	R202	QRSA08J-102YN	RESISTOR
	R203	QRSA08J-102YN	RESISTOR
	R204	QRSA08J-102YN	RESISTOR
	R205	QRSA08J-102YN	RESISTOR
	R206	QRSA08J-103YN	RESISTOR
	R207	QRSA08J-223YN	RESISTOR
	R208	QRSA08J-563YN	RESISTOR

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R209	QRSA08J-103YN	RESISTOR
	R210	QRSA08J-334YN	RESISTOR
	C1	QER41HM-105	E CAPACITOR
	C2	QCYA1HK-682	CAPACITOR
	C3	QCYA1HK-472	CAPACITOR
	C4	QER40JM-226	E CAPACITOR
	C5	QER41CM-226	E CAPACITOR
	C6	QER41CM-476	E CAPACITOR
	C7	QCYA1HK-102	CAPACITOR
	C8	QCYA1HK-102	CAPACITOR
	C9	QER41CM-476	E CAPACITOR
	C10	QER41CM-476	E CAPACITOR
	C11	QCYA1HK-102	CAPACITOR
	C12	QER41CM-107	E CAPACITOR
	C13	QER41CM-476	E CAPACITOR
	C14	QCYA1HK-102	CAPACITOR
	C15	QCTA1CH-101	CAPACITOR
	C16	QER41CM-476	E CAPACITOR
	C17	QCYA1HK-102	CAPACITOR
	C18	QFP42AJ-272	PP CAPACITOR
	C19	QCYA1HJ-103	CAPACITOR
	C20	QCYA1HK-102	CAPACITOR
	C21	QER41CM-476	E CAPACITOR
	C22	QCYA1HK-223	CAPACITOR
	C23	QER41AM-226	E CAPACITOR
	C24	QCTA1CH-101	CAPACITOR
	C25	QCYA1HK-103	CAPACITOR
	C26	QER41CM-106	E CAPACITOR
	C27	QER41CM-226	E CAPACITOR
	C28	QCYA1HK-333	CAPACITOR
	C29	QER41CM-476	E CAPACITOR
	C30	QCYA1HK-123	CAPACITOR
	C31	QCYA1HK-102	CAPACITOR
	C32	QFP42AJ-102	PP CAPACITOR
	C33	QCYA1HK-102	CAPACITOR
	C34	QER41CM-476	E CAPACITOR
	C35	QCYA1HK-472	CAPACITOR
	C36	QER41CM-226	E CAPACITOR
	C37	QER41HM-474	E CAPACITOR
	C38	QFN41HJ-223	M CAPACITOR
	C39	QCYA1HK-103	CAPACITOR
	C40	QCYA1HK-102	CAPACITOR
	C41	QER41CM-476	E CAPACITOR
	C42	QER41CM-226	E CAPACITOR
	C43	QCTA1CH-271	CAPACITOR
	C44	QFN41HK-102	M CAPACITOR
	C45	QEF81CM-105	TANTAL CAPACITOR
	C46	QER41AM-476	E CAPACITOR
	C47	QCTA1CH-390	CAPACITOR
	C48	QCTA1CH-121	CAPACITOR
	C49	QFZ9011-104	MM CAPACITOR
	C50	QER41CM-476	E CAPACITOR
	C51	QCYA1HK-102	CAPACITOR
	C52	QER41HM-105	E CAPACITOR
	C53	QCYA1HK-102	CAPACITOR
	C54	QCYA1HK-102	CAPACITOR
	C55	QCYA1HK-152	CAPACITOR
△	C56	QCTA1CH-330	CAPACITOR
△	C57	QCTA1CH-330	CAPACITOR
	C58	QCYA1HK-561	CAPACITOR
	C60	QER41CM-106	E CAPACITOR
	C61	QCYA1HK-102	CAPACITOR
	C62	QCYA1HK-103	CAPACITOR
	C63	QFP41HF-183	PP CAPACITOR
	C64	QFP41HF-183	PP CAPACITOR
	C65	QFP41HF-183	PP CAPACITOR
	C66	QFP41HF-183	PP CAPACITOR

0304

#Δ REF. NO. PART NO. PART NAME, DESCRIPTION

C67	QER41HM-474	E CAPACITOR
C68	QEF81CM-105	TANTAL CAPACITOR
C70	QER41AM-226	E CAPACITOR
C71	QFM41HJ-682M	M CAPACITOR
C72	QFM41HJ-682M	M CAPACITOR
C73	QER41CM-106	E CAPACITOR
C74	QCYA1HK-682	CAPACITOR
C75	QCYA1HK-122	CAPACITOR
C76	QCYA1HJ-102	CAPACITOR
C77	QCYA1HJ-102	CAPACITOR
Δ C78	QCTA1CH-101	CAPACITOR
Δ C79	QCTA1CH-101	CAPACITOR
C80	QCYA1HK-103	CAPACITOR
C81	QER41CM-476	E CAPACITOR
C82	QER41HM-335	E CAPACITOR
C83	QFZ9011-104	MM CAPACITOR
C84	QCYA1HK-102	CAPACITOR
C85	QCYA1HK-333	CAPACITOR
C86	QFN41HJ-333	M CAPACITOR
C87	QFZ9011-104	MM CAPACITOR
C88	QFZ9011-683	MM CAPACITOR
C89	QER41CM-226	E CAPACITOR
C90	QEL60JM-226G	E CAPACITOR
C91	QEL60JM-226G	E CAPACITOR
C92	QFN41HJ-273	M CAPACITOR
C93	QCYA1HK-333	CAPACITOR
C94	QFN41HJ-123	M CAPACITOR
C95	QCTA1CH-331	CAPACITOR
Δ C96	QCYA1HK-102	CAPACITOR
C97	QCYA1HK-102	CAPACITOR
C98	QFZ9011-104	MM CAPACITOR
C99	QFZ9011-104	MM CAPACITOR
C100	QEP41HM-105	NP E CAPACITOR
C101	QFN41HK-562	M CAPACITOR
C102	QEP41HM-474	NP E CAPACITOR
C103	QEP41AM-106	NP E CAPACITOR
C104	QFZ9011-823	M CAPACITOR
C105	QER41CM-476	E CAPACITOR
C106	QCYA1HK-102	CAPACITOR
C107	QER41CM-476	E CAPACITOR
C108	QER41CM-476	E CAPACITOR
C109	QER41CM-476	E CAPACITOR
C110	QCTA1CH-331	CAPACITOR
C111	QCYA1HK-103	CAPACITOR
C112	QCYA1HK-103	CAPACITOR
C113	QCYA1HK-123	CAPACITOR
C114	QER41CM-476	E CAPACITOR
C115	QER41HM-475	E CAPACITOR
C117	QCTA1CH-560	CAPACITOR
C118	QER41CM-476	E CAPACITOR
C119	QER40JM-226	E CAPACITOR
C120	QCYA1HK-562	CAPACITOR
C121	QCYA1HK-272	CAPACITOR
C122	QCYA1HK-561	CAPACITOR
C123	QCYA1HK-123	CAPACITOR
C124	QER41HM-105	E CAPACITOR
L1	PU53223-101J	PEAKING COIL
L3	PU53223-101J	PEAKING COIL
L4	PU53223-101J	PEAKING COIL
L5	PU53223-101J	PEAKING COIL
L6	PU53223-101J	PEAKING COIL
L7	PU53223-101J	PEAKING COIL
L8	PU53618-471J	PEAKING COIL
L9	PU53223-101J	PEAKING COIL
L10	PU53223-101J	PEAKING COIL
L11	PU53223-101J	PEAKING COIL

#Δ REF. NO. PART NO. PART NAME, DESCRIPTION

L12	PU53223-101J	PEAKING COIL
L13	PGZ00828-470	COIL
L14	PU55811-391	COIL
Δ X1	PU55407	CRYSTAL RESONATOR
Δ X2	PU49487-2	CRYSTAL RESONATOR
Δ X3	PU47701	CRYSTAL RESONATOR
TH1	ERT-D2FHL103S	THERMISTOR
TH2	ERT-D2FHL103S	THERMISTOR
TP1	PU56008	TEST POINT, X31
CN1	PU58844-110Y	CAP HOUSING
CN2	PU58844-108	CAP HOUSING
CN3	PU58844-105	CAP HOUSING
CN4	PU58844-3	CAP HOUSING
CN5	PU58844-102	CAP HOUSING
CN6	PU54537-6	CAP HOUSING
CN7	PU56259-8	CAP HOUSING
CN8	PU58844-102R	CAP HOUSING
CN9	PU58844-102Y	CAP HOUSING
CN10	PU58844-109	CAP HOUSING
CN11	PU58844-3	CAP HOUSING

 * 6.2.4 MDA BOARD ASSY 04 *

PWBA	PGE40243A	MDA BOARD ASSEMBLY
IC1	AN6671K	IC
Δ Q1	2SA1020	TRANSISTOR
D1	11DQ04	DIODE
R1	QRD161J-332	RESISTOR
R2	QRD161J-102	RESISTOR
R3	QRD161J-102	RESISTOR
R4	QRD161J-102	RESISTOR
R5	QRSA08J-223YN	RESISTOR
R6	QRSA08J-561YN	RESISTOR
R7	QRSA08J-473YN	RESISTOR
R8	QRSA08J-333YN	RESISTOR
R9	QRSA08J-472YN	RESISTOR
R10	QRD161J-223	RESISTOR
R11	QRD161J-223	RESISTOR
R12	QRD161J-392	RESISTOR
C1	QEK41CM-106	E CAPACITOR
C2	QEK41HM-225	E CAPACITOR
C3	QEK41HM-225	E CAPACITOR
C4	QFN41HJ-223	M CAPACITOR
C5	QEK41HM-225	E CAPACITOR
C6	QEK41HM-225	E CAPACITOR
C7	QEK41EM-336	E CAPACITOR
C8	QEM41EK-106	E CAPACITOR
C9	QET41EM-107	E CAPACITOR
C10	QFN41HJ-333	M CAPACITOR
IB1	PU35238-006	IN LINE BLOCK
L1	PU55811-391	COIL
L2	PU49994-120	COIL
Δ TH1	PU52108-2R2	POSISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

SLD1	PRS40007	SHIELD CASE 1
SLD2	PRS40008	SHIELD CASE 2
CN1	PU56258-8	CAP HOUSING
CN2	PU53587-12	CAP HOUSING

 * 6.2.5 AUDIO BOARD ASSY 05 *

PWBA PGE10037B-03 AUDIO BOARD ASSY

IC1	NJM4556MB	IC
IC2	NJM4556MB	IC
IC3	TK15021	IC
IC4	TA7361AF	IC
IC5	AN3991NS	IC
IC6	TA7361AF	IC
IC7	AN3991NS	IC
IC9	NR0860	IC
IC10	TK15021	IC

IC12	VC2024A	IC
IC13	AN3926S	IC
IC14	TK15021	IC
IC15	NJM4556MB	IC
IC16	BA226F	IC
IC17	BA634F	IC
IC18	TK15021	IC
IC19	NJM4556MB	IC

Q1	2SD601	TRANSISTOR
Q2	2SB709	TRANSISTOR
Q3	2SD601	TRANSISTOR
Q4	2SC2405(ST)	TRANSISTOR
Q5	2SC2405(ST)	TRANSISTOR
Q6	2SD1328S,T	TRANSISTOR
Q7	2SD601	TRANSISTOR
Q8	DTA124EK	TRANSISTOR
Q9	2SD601	TRANSISTOR
Q10	2SB709	TRANSISTOR

Q11	2SC2405(ST)	TRANSISTOR
Q12	2SC2405(ST)	TRANSISTOR
Q13	2SD1328S,T	TRANSISTOR
Q14	2SD601A	TRANSISTOR
Q15	2SD601	TRANSISTOR
Q16	2SD637S	TRANSISTOR
Q17	2SD637S	TRANSISTOR
Q18	2SB643Q	TRANSISTOR
Q19	2SD638Q	TRANSISTOR
Q20	2SC2412K	TRANSISTOR

Q21	FMW3	TRANSISTOR
Q22	2SD601A	TRANSISTOR
Q24	2SD973AR	TRANSISTOR
Q25	2SA1037K	TRANSISTOR
Q26	2SD601A	TRANSISTOR
Q27	2SA1037K	TRANSISTOR
Q28	2SA1037K	TRANSISTOR
Q29	2SD601	TRANSISTOR
Q30	2SD601	TRANSISTOR

Q31	2SA1037K	TRANSISTOR
Q33	DTC124EK	TRANSISTOR
Q34	DTC124EK	TRANSISTOR
Q35	DTC124EK	TRANSISTOR
Q36	DTC124EK	TRANSISTOR
Q37	DTC124EK	TRANSISTOR
Q38	DTC124EK	TRANSISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

Q39	DTC124EK	TRANSISTOR
Q40	DTC124EK	TRANSISTOR

Q41	DTA124EK	TRANSISTOR
Q43	DTC124EK	TRANSISTOR
Q44	DTC124EK	TRANSISTOR
Q45	DTA124EK	TRANSISTOR
Q47	DTC124EK	TRANSISTOR
Q48	DTA124EK	TRANSISTOR
Q49	DTC124EK	TRANSISTOR
Q50	DTA124EK	TRANSISTOR

Q51	DTA124EK	TRANSISTOR
Q52	DTC124EK	TRANSISTOR
Q53	2SB709	TRANSISTOR
Q54	DTA124EK	TRANSISTOR
Q56	2SD1328S,T	TRANSISTOR
Q57	2SD1328S,T	TRANSISTOR
Q58	DTC124EK	TRANSISTOR
Q59	DTC124EK	TRANSISTOR
Q60	DTC124EK	TRANSISTOR

Q61	2SD601	TRANSISTOR
Q62	2SD1328S,T	TRANSISTOR
Q63	DTC124EK	TRANSISTOR
Q65	FMS3	TRANSISTOR
Q66	DTC124EK	TRANSISTOR
Q67	FMW3	TRANSISTOR
Q68	FMW3	TRANSISTOR
Q69	2SD601(S)	TRANSISTOR
Q70	2SD601(S)	TRANSISTOR

Q71	2SD601(S)	TRANSISTOR
Q72	DTC124EK	TRANSISTOR
Q73	DTC124EK	TRANSISTOR
Q74	DTC124EK	TRANSISTOR
Q75	DTC124EK	TRANSISTOR
Q76	DTC124EK	TRANSISTOR
Q77	2SD601	TRANSISTOR
Q78	DTC124EK	TRANSISTOR
Q79	DTC124EK	TRANSISTOR
Q80	DTC124EK	TRANSISTOR

Q81	DTC124EK	TRANSISTOR
Q82	DTC124EK	TRANSISTOR
Q83	2SD601	TRANSISTOR
Q87	2SD601	TRANSISTOR
Q88	2SD601	TRANSISTOR
Q89	DTC124EK	TRANSISTOR
Q90	DTC124EK	TRANSISTOR

Q92	2SD601	TRANSISTOR
Q93	DTC124EK	TRANSISTOR
Q94	DTA124EK	TRANSISTOR
Q95	DTC124EK	TRANSISTOR
Q96	DTA124EK	TRANSISTOR

Q101	FMG2	TRANSISTOR
Q102	FMG2	TRANSISTOR
Q103	DTC144EK	TRANSISTOR
Q104	DTC144WK	TRANSISTOR

D1	0A90	DIODE
D2	0A90	DIODE
D3	0A90	DIODE
D4	0A90	DIODE
D5	DAP202K	DIODE
D7	DAP202K	DIODE
D8	DAP202K	DIODE
D9	DAP202K	DIODE
D10	DAP202K	DIODE

D11	DAP202K	DIODE
D12	DA204K	DIODE

#A REF NO. PART NO. PART NAME, DESCRIPTION

D13 DAN202K CHIP DIODE ARRAY
 D14 DAP202K DIODE
 D15 DAP202K DIODE

D101 DAN202K CHIP DIODE ARRAY

R1 QRSA08G-223YN RESISTOR
 R2 QRSA08G-223YN RESISTOR
 R3 QRSA08G-223YN RESISTOR
 R4 QRSA08G-223YN RESISTOR
 R5 QRSA08J-223YN RESISTOR
 R6 QRSA08G-223YN RESISTOR
 R7 QRSA08G-223YN RESISTOR
 R8 QRSA08J-473YN RESISTOR
 R9 QRSA08J-473YN RESISTOR

R11 QRSA08J-223YN RESISTOR
 R12 QRSA08G-223YN RESISTOR
 R13 QRSA08G-223YN RESISTOR
 R14 QRSA08J-473YN RESISTOR
 R15 QRSA08J-473YN RESISTOR
 R17 QRSA08J-103YN RESISTOR
 R18 QRSA08J-103YN RESISTOR

R21 QRSA08J-473YN RESISTOR
 R22 QRSA08J-684YN RESISTOR
 R23 QRSA08J-332YN RESISTOR
 R24 QRSA08J-823YN RESISTOR
 R25 QRSA08J-560YN RESISTOR
 R26 QRSA08J-103YN RESISTOR
 R27 QRSA08J-392YN RESISTOR
 R28 QRSA08J-102YN RESISTOR
 R29 QRSA08J-474YN RESISTOR
 R30 QRSA08J-682YN RESISTOR

R31 QRSA08J-823YN RESISTOR
 R32 QRSA08J-222YN RESISTOR
 R33 QRSA08J-221YN RESISTOR
 R34 QRSA08J-105YN RESISTOR
 R35 QRSA08J-332YN RESISTOR
 R36 QRSA08J-222YN RESISTOR
 R37 QRSA08J-221YN RESISTOR
 R39 QRSA08J-473YN RESISTOR
 R40 QVPC402-103 V RESISTOR

R41 QRSA08J-223YN RESISTOR
 R42 QRSA08J-332YN RESISTOR
 R43 QRSA08J-121YN RESISTOR
 R44 QRSA08J-393YN RESISTOR
 R45 QRSA08J-681YN RESISTOR
 R46 QVPC402-222 V RESISTOR
 R47 QRSA08J-102YN RESISTOR
 R48 QVPC402-222 V RESISTOR
 R49 QRSA08J-223YN RESISTOR

R51 QVPC402-222 V RESISTOR
 R52 QRSA08J-101YN RESISTOR
 R53 QRSA08J-105YN RESISTOR
 R54 QRSA08J-105YN RESISTOR
 R55 QRSA08J-222YN RESISTOR
 R56 QRSA08J-102YN RESISTOR
 R57 QRSA08J-392YN RESISTOR
 R58 QRSA08J-562YN RESISTOR
 R59 QRSA08J-562YN RESISTOR
 R60 QRSA08J-822YN RESISTOR

R61 QRSA08J-102YN RESISTOR
 R64 QRSA08J-473YN RESISTOR
 R65 QRSA08J-684YN RESISTOR
 R66 QRSA08J-332YN RESISTOR
 R67 QRSA08J-823YN RESISTOR
 R68 QRSA08J-560YN RESISTOR
 R69 QRSA08J-103YN RESISTOR
 R70 QRSA08J-392YN RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R71 QRSA08J-474YN RESISTOR
 R72 QRSA08J-823YN RESISTOR
 R73 QRSA08J-682YN RESISTOR
 R74 QRSA08J-222YN RESISTOR
 R75 QRSA08J-221YN RESISTOR
 R76 QRSA08J-103YN RESISTOR
 R77 QRSA08J-332YN RESISTOR
 R78 QRSA08J-222YN RESISTOR
 R79 QRSA08J-221YN RESISTOR

R81 QRSA08J-473YN RESISTOR
 R82 QRSA08J-223YN RESISTOR
 R83 QRSA08J-332YN RESISTOR
 R84 QRSA08J-121YN RESISTOR
 R85 QRSA08J-393YN RESISTOR
 R86 QRSA08J-681YN RESISTOR
 R87 QVPC402-222 V RESISTOR
 R88 QRSA08J-102YN RESISTOR
 R89 QVPC402-222 V RESISTOR
 R90 QRSA08J-223YN RESISTOR

R92 QVPC402-222 V RESISTOR
 R93 QRSA08J-101YN RESISTOR
 R94 QRSA08J-105YN RESISTOR
 R95 QRSA08J-105YN RESISTOR
 R96 QRSA08J-222YN RESISTOR
 R97 QRSA08J-102YN RESISTOR
 R98 QRSA08J-392YN RESISTOR
 R99 QRSA08J-562YN RESISTOR
 R100 QRSA08J-562YN RESISTOR

R101 QRSA08J-822YN RESISTOR
 R102 QRSA08J-102YN RESISTOR
 R103 QRSA08J-223YN RESISTOR
 R104 QVPC402-683 V RESISTOR
 R105 QVPC402-683 V RESISTOR
 R110 QRSA08J-182YN RESISTOR

R111 QRSA08J-302YN RESISTOR
 R112 QRSA08J-331YN RESISTOR
 R116 QRSA08J-182YN RESISTOR
 R117 QRSA08J-302YN RESISTOR
 R118 QRSA08J-331YN RESISTOR
 R119 QRSA08J-183YN RESISTOR
 R120 QRSA08J-103YN RESISTOR

R121 QRSA08J-103YN RESISTOR
 R123 QRSA08J-223YN RESISTOR
 R124 QRZ0054-100 FUSIBLE RESISTOR
 R125 QRSA08J-100YN RESISTOR
 R126 QRSA08J-100YN RESISTOR
 R127 QRSA08J-333YN RESISTOR
 R128 QRSA08J-333YN RESISTOR

R151 QRSA08J-823YN RESISTOR
 R152 QRSA08J-102YN RESISTOR
 R153 QVPC402-222 V RESISTOR
 R154 QVZ3531-332 V RESISTOR
 R155 ERT-D2FGL301S THERMISTOR
 R156 QRSA08J-221YN RESISTOR
 R157 QRSA08J-102YN RESISTOR
 R158 ERT-D2FGL301S THERMISTOR
 R159 QVPC402-222 V RESISTOR
 R160 QVZ3531-332 V RESISTOR

R161 QVPC402-102 V RESISTOR
 R162 QRSA08J-272YN RESISTOR
 R163 QVPC402-102 V RESISTOR
 R164 QRSA08J-102YN RESISTOR
 R165 QRSA08J-104YN RESISTOR
 R166 QRSA08J-104YN RESISTOR
 R167 QRSA08J-102YN RESISTOR
 R168 QRSA08J-152YN RESISTOR

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION	#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
R169	QRSA08J-332YN	RESISTOR	R246	QRSA08J-472YN	RESISTOR
R170	QRSA08J-332YN	RESISTOR	R247	QRSA08J-183YN	RESISTOR
			R248	QRSA08J-682YN	RESISTOR
R171	QRSA08J-152YN	RESISTOR	R250	QRSA08J-333YN	RESISTOR
R172	QRSA08J-220YN	RESISTOR			
R173	QRSA08J-472YN	RESISTOR	R251	QRSA08J-472YN	RESISTOR
R174	QRSA08J-220YN	RESISTOR	R252	QRSA08J-472YN	RESISTOR
R175	QRSA08J-102YN	RESISTOR	R253	QRSA08J-335YN	RESISTOR
R177	QRSA08J-102YN	RESISTOR	R254	QRSA08J-335YN	RESISTOR
R178	QRSA08J-102YN	RESISTOR	R255	QRSA08J-272YN	RESISTOR
R179	QRSA08J-102YN	RESISTOR	R256	QRSA08J-473YN	RESISTOR
R180	QRSA08J-102YN	RESISTOR	R257	QRSA08J-103YN	RESISTOR
			R258	QRSA08J-682YN	RESISTOR
R182	QRSA08J-223YN	RESISTOR	R259	QRSA08J-393YN	RESISTOR
R183	QRSA08J-333YN	RESISTOR	R260	QRD161J-101	RESISTOR
R185	QRSA08J-103YN	RESISTOR			
R186	QRSA08J-103YN	RESISTOR	R263	QRSA08J-103YN	RESISTOR
R187	QRSA08J-223YN	RESISTOR	R264	QRSA08J-473YN	RESISTOR
R188	QRSA08J-223YN	RESISTOR	R266	QRSA08J-393YN	RESISTOR
R189	QRSA08J-473YN	RESISTOR	R269	QRSA08J-473YN	RESISTOR
R190	QVPC402-153	RESISTOR	R270	QRSA08J-473YN	RESISTOR
R191	QRSA08J-103YN	RESISTOR	R271	QRSA08J-222YN	RESISTOR
R192	QRSA08J-473YN	RESISTOR	R272	QRSA08J-472YN	RESISTOR
R193	QRSA08J-473YN	RESISTOR	R273	QRSA08J-103YN	RESISTOR
R194	QRSA08J-104YN	RESISTOR	R274	QRSA08J-103YN	RESISTOR
R195	QRSA08J-101YN	RESISTOR	R275	QRSA08J-223YN	RESISTOR
R196	QRSA08J-472YN	RESISTOR	R276	QRSA08J-223YN	RESISTOR
R197	QRSA08J-221YN	RESISTOR	R277	QRSA08J-333YN	RESISTOR
R198	QVPC402-152	V RESISTOR	R278	QRSA08J-333YN	RESISTOR
R199	QRSA08J-221YN	RESISTOR	R279	QRSA08J-103YN	RESISTOR
R200	QVPC402-152	V RESISTOR	R280	QRSA08J-102YN	RESISTOR
R202	QRD161J-681	RESISTOR	R281	QRSA08J-103YN	RESISTOR
R203	QRSA08J-104YN	RESISTOR	R282	QRSA08J-102YN	RESISTOR
R204	QRSA08J-472YN	RESISTOR	R283	QRSA08J-333YN	RESISTOR
R206	QRSA08J-333YN	RESISTOR	R285	QRSA08J-222YN	RESISTOR
R207	QRSA08J-104YN	RESISTOR	R286	QRSA08J-472YN	RESISTOR
R208	QRSA08J-222YN	RESISTOR	R287	QRSA08J-473YN	RESISTOR
R209	QRSA08J-104YN	RESISTOR	R288	QRSA08J-472YN	RESISTOR
R210	QRSA08J-222YN	RESISTOR	R289	QRSA08J-222YN	RESISTOR
			R290	QRSA08J-472YN	RESISTOR
R211	QRSA08J-681YN	RESISTOR			
R212	QRSA08J-681YN	RESISTOR	R291	QRSA08J-222YN	RESISTOR
R213	QRSA08J-104YN	RESISTOR	R292	QRSA08J-472YN	RESISTOR
R214	QRSA08J-472YN	RESISTOR	R293	QRSA08J-103YN	RESISTOR
R215	QRD161J-152	RESISTOR	R294	QRSA08J-222YN	RESISTOR
R216	ERT-D2FHL102S	THERMISTOR	R295	QRSA08J-103YN	RESISTOR
R218	QRSA08J-332YN	RESISTOR	R296	QRSA08J-223YN	RESISTOR
R219	QRSA08J-223YN	RESISTOR	R297	QRSA08J-472YN	RESISTOR
R220	QRSA08J-223YN	RESISTOR	R298	QRSA08J-103YN	RESISTOR
			R299	QRSA08J-223YN	RESISTOR
R221	QRSA08J-472YN	RESISTOR	R300	QRSA08J-472YN	RESISTOR
R225	QRSA08J-104YN	RESISTOR			
R226	QRSA08J-104YN	RESISTOR	R302	QRSA08J-473YN	RESISTOR
R227	QRSA08J-223YN	RESISTOR	R303	QRSA08J-473YN	RESISTOR
R228	QRSA08J-821YN	RESISTOR	R304	QRSA08J-103YN	RESISTOR
R229	QRSA08J-822YN	RESISTOR	R305	QRSA08J-562YN	RESISTOR
R230	QRSA08J-472YN	RESISTOR	R306	QRSA08J-223YN	RESISTOR
			R307	QRSA08J-472YN	RESISTOR
R231	QRSA08J-472YN	RESISTOR	R309	QRSA08J-472YN	RESISTOR
R232	QRSA08J-222YN	RESISTOR	R310	QRSA08J-392YN	RESISTOR
R233	QRSA08J-103YN	RESISTOR			
R234	QRSA08J-332YN	RESISTOR	R311	QRSA08J-472YN	RESISTOR
R235	QRSA08J-332YN	RESISTOR	R313	QRSA08J-472YN	RESISTOR
R236	QRSA08J-103YN	RESISTOR	R314	QRSA08J-392YN	RESISTOR
R237	QRSA08J-333YN	RESISTOR	R315	QRSA08J-222YN	RESISTOR
R239	QRSA08J-333YN	RESISTOR	R316	QRSA08J-103YN	RESISTOR
			R317	QRSA08J-103YN	RESISTOR
R241	QVPC402-224	V RESISTOR	R318	QRSA08J-103YN	RESISTOR
R242	QRSA08J-474YN	RESISTOR	R319	QRSA08J-103YN	RESISTOR
R243	QVPC402-224	V RESISTOR	R320	QRSA08J-103YN	RESISTOR
R244	QRSA08J-474YN	RESISTOR			
R245	QRSA08J-183YN	RESISTOR	R321	QRSA08J-103YN	RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R322 QRSA08J-103YN RESISTOR
 R323 QVPC402-224 V RESISTOR
 R324 QVPC402-224 V RESISTOR
 R325 QRSA08J-223YN RESISTOR
 R326 QRSA08J-223YN RESISTOR
 R327 QRSA08J-103YN RESISTOR
 R328 QRSA08J-103YN RESISTOR
 R329 QRSA08J-103YN RESISTOR
 R330 QRSA08J-223YN RESISTOR

R331 QRSA08J-103YN RESISTOR
 R332 QRSA08J-223YN RESISTOR
 R333 QRSA08J-223YN RESISTOR
 R334 QRSA08J-103YN RESISTOR
 R335 QRSA08J-103YN RESISTOR
 R336 QRSA08J-103YN RESISTOR
 R337 QRSA08J-223YN RESISTOR
 R338 QRSA08J-103YN RESISTOR
 R339 QRSA08J-473YN RESISTOR

R355 QRSA08J-822YN RESISTOR
 R356 QRSA08J-105YN RESISTOR
 R357 QRSA08J-472YN RESISTOR
 R359 QRSA08J-103YN RESISTOR
 R360 QRSA08J-332YN RESISTOR

R361 QRSA08J-103YN RESISTOR
 R362 QRSA08J-332YN RESISTOR
 R363 QRSA08J-102YN RESISTOR
 R364 QRSA08J-102YN RESISTOR
 R366 QRSA08J-472YN RESISTOR

R501 QRSA08J-223YN RESISTOR
 R502 QRSA08J-223YN RESISTOR

C1 QER41CM-106 E CAPACITOR
 C2 QER41CM-106 E CAPACITOR
 C3 QER41CM-106 E CAPACITOR
 C4 QER41CM-106 E CAPACITOR
 C5 QER41EM-475 E CAPACITOR
 C7 QEPA1CM-475 NP E CAPACITOR
 C8 QER41EM-475 E CAPACITOR
 C10 QEPA1CM-475 NP E CAPACITOR

C11 QEK41AM-107 E CAPACITOR
 C12 QCYA1HK-102 CAPACITOR
 C13 QCYA1HK-102 CAPACITOR
 C14 QER41CM-106 E CAPACITOR
 C15 QER41CM-106 E CAPACITOR
 C16 QER41EM-475 E CAPACITOR
 C19 QER40JM-226 E CAPACITOR
 C20 QER41CM-106 E CAPACITOR

C21 QEPA1CM-475 NP E CAPACITOR
 C22 QER41HM-105 E CAPACITOR
 C23 QCYA1HK-103 CAPACITOR
 C24 QEF81AM-106 TANTAL CAPACITOR
 C25 QCYA1HK-102 CAPACITOR
 C26 QER40JM-476 E CAPACITOR
 C27 QER40JM-476 E CAPACITOR
 C28 QEF81AM-475 TANTAL CAPACITOR
 C29 QER41CM-106 E CAPACITOR
 C30 QEK41AM-107 E CAPACITOR

C31 QEK41AM-107 E CAPACITOR
 C32 QER40JM-476 E CAPACITOR
 C33 QEF81AM-155 E CAPACITOR
 C34 QCY81EK-823 CAPACITOR
 C35 QER40JM-476 E CAPACITOR
 C36 QER41AM-226 E CAPACITOR
 C37 QCSA1HJ-471 CAPACITOR
 C38 QER41AM-226 E CAPACITOR
 C39 QER41EM-475 E CAPACITOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

C41 QER41EM-475 E CAPACITOR
 C42 QCYA1HK-182 CAPACITOR
 C43 QEK41AM-107 E CAPACITOR
 C44 QER41HM-474 E CAPACITOR
 C45 QCYA1HK-103 CAPACITOR
 C46 QCYA1HK-562 CAPACITOR
 C48 QER41EM-475 E CAPACITOR

C51 QER40JM-226 E CAPACITOR
 C52 QER41CM-106 E CAPACITOR
 C53 QEPA1CM-475 NP E CAPACITOR
 C54 QEF81AM-106 TANTAL CAPACITOR
 C55 QCYA1HK-102 CAPACITOR
 C56 QER40JM-476 E CAPACITOR
 C57 QER40JM-476 E CAPACITOR
 C58 QEF81AM-475 TANTAL CAPACITOR
 C59 QCSA1HJ-471 CAPACITOR
 C60 QEK41AM-107 E CAPACITOR

C61 QEK41AM-107 E CAPACITOR
 C62 QER40JM-476 E CAPACITOR
 C63 QEF81AM-155 E CAPACITOR
 C64 QCY81EK-823 CAPACITOR
 C65 QER40JM-476 E CAPACITOR
 C66 QER41AM-226 E CAPACITOR
 C67 QER41HM-105 E CAPACITOR
 C68 QER41AM-226 E CAPACITOR
 C69 QER41EM-475 E CAPACITOR

C71 QER41EM-475 E CAPACITOR
 C72 QCYA1HK-182 CAPACITOR
 C73 QEK41AM-107 E CAPACITOR
 C74 QER41HM-474 E CAPACITOR
 C75 QCYA1HK-103 CAPACITOR
 C76 QCYA1HK-562 CAPACITOR
 C78 QCYA1HK-182 CAPACITOR
 C79 QCYA1HK-102 CAPACITOR

C81 QER41HM-104 E CAPACITOR
 C82 QER41HM-104 E CAPACITOR
 C85 QEK41AM-107 E CAPACITOR
 C89 QER41EM-475 E CAPACITOR
 C90 QER41EM-475 E CAPACITOR

C91 QEK41AM-227 E CAPACITOR
 C92 QER40JM-107 E CAPACITOR
 C93 QEK41AM-107 E CAPACITOR
 C94 QEPA1AM-106 NP
 C95 QEPA1AM-106 NP
 C97 QER41CM-106 E CAPACITOR
 C99 QER41CM-106 E CAPACITOR
 C100 QEPA1AM-106 NP

C101 QER41AM-106 E CAPACITOR
 C103 QEPA1AM-106 NP
 C104 QCSA1HJ-221 CAPACITOR
 C105 QCSA1HJ-221 CAPACITOR
 C106 QFN41HJ-223 M CAPACITOR
 C107 QCYA1HK-222 CAPACITOR
 C108 QCYA1HK-222 CAPACITOR
 C109 QCYA1HK-682 CAPACITOR
 C110 QFN41HJ-223 M CAPACITOR

C149 QCSA1HJ-101 CAPACITOR
 C150 QCYA1HK-223 CAPACITOR

C151 QCYA1HK-472 CAPACITOR
 C152 QER41CM-106 E CAPACITOR
 C153 QER40GM-227 E CAPACITOR
 C154 QER40GM-227 E CAPACITOR
 C155 QCYA1HK-222 CAPACITOR
 C156 QER41CM-106 E CAPACITOR
 C157 QCYA1HK-103 CAPACITOR
 C158 QER40JM-107 E CAPACITOR

#Δ	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C159	QCSA1HJ-101	CAPACITOR
	C160	QCYA1HK-223	CAPACITOR
	C161	QCYA1HK-472	CAPACITOR
	C162	QER41CM-106	E CAPACITOR
	C163	QCYA1HK-222	CAPACITOR
	C164	QER41CM-106	E CAPACITOR
	C165	QER40JM-107	E CAPACITOR
	C167	QCYA1HK-102	CAPACITOR
	C168	QCYA1HK-223	CAPACITOR
	C169	QCYA1HK-223	CAPACITOR
	C170	QCYA1HK-102	CAPACITOR
	C171	QCYA1HK-182	CAPACITOR
	C172	QCYA1HK-103	CAPACITOR
	C173	QEE41AM-156	TANTAL CAPACITOR
	C175	QER41EM-475	E CAPACITOR
	C178	QEP41CM-475	NP E CAPACITOR
	C179	QCYA1HK-103	CAPACITOR
	C180	QCYA1HK-821	CAPACITOR
	C181	QER41EM-475	E CAPACITOR
	C182	QER41AM-336	E CAPACITOR
	C183	QEK41AM-107	E CAPACITOR
	C184	QEP41CM-475	NP E CAPACITOR
	C185	QER41EM-475	E CAPACITOR
	C186	QER41EM-475	E CAPACITOR
	C187	QER41EM-475	E CAPACITOR
	C190	QER41EM-475	E CAPACITOR
	C191	QEK41AM-107	E CAPACITOR
	C192	QER41EM-475	E CAPACITOR
	C193	QER41EM-475	E CAPACITOR
	C195	QER41AM-106	E CAPACITOR
	C197	QER41AM-106	E CAPACITOR
	C198	QER41CM-106	E CAPACITOR
	C199	QER41AM-106	E CAPACITOR
	C200	QER41CM-106	E CAPACITOR
	C202	QEK41AM-227	E CAPACITOR
	C203	QEK41AM-107	E CAPACITOR
	C204	QFN41HJ-223	M CAPACITOR
	C205	QCYA1HK-102	CAPACITOR
	C206	QCYA1HK-223	CAPACITOR
	C207	QCYA1HK-102	CAPACITOR
	C208	QER41CM-226	E CAPACITOR
	C209	QEK41CM-107	E CAPACITOR
	C210	QER41CM-226	E CAPACITOR
	C211	QER41HM-104	E CAPACITOR
	C215	QER41EM-475	E CAPACITOR
	C216	QEP41CM-475	NP E CAPACITOR
	C217	QER41AM-106	E CAPACITOR
	C218	QEP41CM-475	NP E CAPACITOR
	C219	QER41AM-106	E CAPACITOR
	C220	QER41AM-106	E CAPACITOR
	C221	QER41AM-106	E CAPACITOR
	C222	QER41EM-475	E CAPACITOR
	C223	QCYA1HK-223	CAPACITOR
	C224	QER41EM-475	E CAPACITOR
	C225	QEP41CM-475	NP E CAPACITOR
	C226	QFN41HJ-223	M CAPACITOR
	C227	QEP41CM-475	NP E CAPACITOR
	C228	QEK41AM-107	E CAPACITOR
	C229	QER41EM-475	E CAPACITOR
	C230	QER41EM-475	E CAPACITOR
	C231	QER41EM-335	E CAPACITOR
	C232	QER41EM-335	E CAPACITOR
	C233	QCSA1HJ-101	CAPACITOR
	C234	QCSA1HJ-101	CAPACITOR
	C235	QER41CM-106	E CAPACITOR
	C236	QCYA1HK-103	CAPACITOR

#Δ	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C237	QER41EM-475	E CAPACITOR
	C238	QER40JM-336	E CAPACITOR
	C239	QER41CM-106	E CAPACITOR
	C240	QER40JM-336	E CAPACITOR
	C241	QER41CM-106	E CAPACITOR
	C242	QER41HM-104	E CAPACITOR
	C243	QER41CM-106	E CAPACITOR
	C244	QER41HM-474	E CAPACITOR
	C245	QER41CM-106	E CAPACITOR
	C246	QER41HM-474	E CAPACITOR
	C247	QER41HM-104	E CAPACITOR
	C248	QER41AM-106	E CAPACITOR
	C249	QER41HM-474	E CAPACITOR
	C250	QER41HM-104	E CAPACITOR
	C251	QCYA1HJ-333	CAPACITOR
	C252	QCYA1HJ-333	CAPACITOR
	C253	QER41CM-106	E CAPACITOR
	C254	QER40JM-226	E CAPACITOR
	C255	QCYA1HK-103	CAPACITOR
	C256	QCYA1HK-103	CAPACITOR
	C257	QER41CM-106	E CAPACITOR
	C258	QER41CM-106	E CAPACITOR
	C268	QER41EM-475	E CAPACITOR
	C269	QEE41EK-105	T CAPACITOR
	L1	PGZ00700-472J	COIL
	L3	PGZ00700-472J	COIL
Δ	L5	PU52600	OSC COIL
	L6	PGZ00638-391J	COIL
	L10	PGZ00637-101K	COIL
	L11	PGZ00639-182J	COIL
	L12	PGZ00637-101K	COIL
	L13	PGZ00639-182J	COIL
	L14	PGZ00638-102K	COIL
	L16	PGZ00638-221K	COIL
	L17	PGZ00637-101K	COIL
	LPF1	PGZ00632	LOW PASS FILTER
	LPF2	PGZ00632	LOW PASS FILTER
	BPF1	PGZ00949	BAND PASS FILTER
	BPF2	PGZ00950	BAND PASS FILTER
	RY1	PGZ00631	RELAY
	TP1	PU54983	TEST PIN, X26
	SLD1	PGD40841-01-01	SHIELD CASE
	SLD2	PGD40842-01-01	SHIELD CAP
	CN1	PU58844-10R	CAP HOUSING
	CN2	PU58844-7R	CAP HOUSING
	CN3	PU58844-3R	CAP HOUSING
	CN4	PU58844-3	CAP HOUSING
	CN5	PU58844-4	CAP HOUSING
	CN6	PU58844-10Y	CAP HOUSING
	CN7	PU58844-7	CAP HOUSING
	CN8	PU58844-4Y	CAP HOUSING
	CN9	PU58844-2	CAP HOUSING
	CN10	PU58844-8	CAP HOUSING
	CN11	PU58844-5R	CAP HOUSING
	CN12	PU58844-6	CAP HOUSING
	CN13	PU58844-10	CAP HOUSING
	CN14	PGZ00724-11	CONNECTOR
	CN15	PGZ00724-10	CONNECTOR

-FM SUB BOARD ASSY <05>-
(This board is not included in the AUDIO board ass'y.)

PWBA PRK30006A-02 FM SUB BOARD ASSY

#Δ REF NO. PART NO. PART NAME, DESCRIPTION

IC11	AN6299NC	IC
IC20	M5236L	IC
IC21	NJM4556MB	IC
IC22	NJM4556MB	IC
IC23	NJM4556MB	IC
Q32	DTC124EK	TRANSISTOR
Q42	2SB793AR	TRANSISTOR
Q64	DTC124EK	TRANSISTOR
Q84	DTC124EK	TRANSISTOR
Q105	FMA1	TRANSISTOR
Q106	IMH7	TRANSISTOR
Q107	IMH7	TRANSISTOR
Q108	2SD601	TRANSISTOR
Q109	2SD601	TRANSISTOR
D30	DA204K	DIODE
D31	DA204K	DIODE
R106	QRSA08J-221YN	RESISTOR
R107	QRSA08J-153YN	RESISTOR
R113	QRSA08J-392YN	RESISTOR
R114	QRSA08J-273YN	RESISTOR
R115	QRSA08J-394YN	RESISTOR
R131	QRSA08J-821YN	RESISTOR
R132	QRSA08J-682YN	RESISTOR
R133	QRSA08J-182YN	RESISTOR
R134	QRSA08J-392YN	RESISTOR
R135	QRSA08J-181YN	RESISTOR
R136	QRSA08J-123YN	RESISTOR
R137	QRSA08J-392YN	RESISTOR
R138	QRSA08J-123YN	RESISTOR
R139	QRSA08J-473YN	RESISTOR
R140	QRSA08J-153YN	RESISTOR
R141	QRSA08J-821YN	RESISTOR
R142	QRSA08J-682YN	RESISTOR
R143	QRSA08J-182YN	RESISTOR
R144	QRSA08J-392YN	RESISTOR
R145	QRSA08J-181YN	RESISTOR
R146	QRSA08J-392YN	RESISTOR
R147	QRSA08J-123YN	RESISTOR
R148	QRSA08J-123YN	RESISTOR
R149	QRSA08J-473YN	RESISTOR
R150	QRSA08J-153YN	RESISTOR
R222	QRSA08J-473YN	RESISTOR
R261	QRSA08J-104YN	RESISTOR
R262	QRSA08J-103YN	RESISTOR
R267	QRSA08J-103YN	RESISTOR
R268	QRSA08J-104YN	RESISTOR
R340	QRSA08J-272YN	RESISTOR
R341	QRSA08J-472YN	RESISTOR
R342	QRSA08J-272YN	RESISTOR
R343	QRSA08J-472YN	RESISTOR
R344	QRSA08J-103YN	RESISTOR
R345	QRSA08J-103YN	RESISTOR
R346	QRSA08J-222YN	RESISTOR
R347	QRSA08J-104YN	RESISTOR
R348	QRSA08J-103YN	RESISTOR
R349	QRSA08J-103YN	RESISTOR
R350	QRSA08J-103YN	RESISTOR

#Δ REF NO. PART NO. PART NAME, DESCRIPTION

R351	QRSA08J-103YN	RESISTOR
R352	QRSA08J-103YN	RESISTOR
R353	QRSA08J-103YN	RESISTOR
R367	ERT-D2FGL301S	THERMISTOR
R368	QRSA08J-102YN	RESISTOR
R369	ERT-D2FGL301S	THERMISTOR
R370	QRSA08J-102YN	RESISTOR
R371	QRD167J-821	RESISTOR
R503	QRSA08J-222YN	RESISTOR
R504	QRSA08J-821YN	RESISTOR
R505	QRSA08J-104YN	RESISTOR
R506	QRSA08J-561YN	RESISTOR
R507	QRSA08J-821YN	RESISTOR
R508	QRSA08J-561YN	RESISTOR
R509	QRSA08J-392YN	RESISTOR
R510	QRSA08J-122YN	RESISTOR
R511	QRSA08J-683YN	RESISTOR
R512	QRSA08J-103YN	RESISTOR
R513	QRSA08J-103YN	RESISTOR
R514	QRSA08J-392YN	RESISTOR
R515	QRSA08J-122YN	RESISTOR
R516	QRSA08J-102YN	RESISTOR
R517	QRSA08J-392YN	RESISTOR
R518	QRSA08J-122YN	RESISTOR
R519	QRSA08J-683YN	RESISTOR
R520	QRSA08J-103YN	RESISTOR
R521	QRSA08J-103YN	RESISTOR
R522	QRSA08J-392YN	RESISTOR
R523	QRSA08J-122YN	RESISTOR
R524	QRSA08J-102YN	RESISTOR
R525	QRSA08J-103YN	RESISTOR
C111	QER41HM-225	E CAPACITOR
C112	QCYA1HK-183	CAPACITOR
C113	QCYA1HK-153	CAPACITOR
C114	QER40JM-226	E CAPACITOR
C115	QER40JM-226	E CAPACITOR
C116	QCSA1HJ-151	CAPACITOR
C117	QCYA1HK-103	CAPACITOR
C118	QCYA1HK-821	CAPACITOR
C119	QCYA1HK-152	CAPACITOR
C120	QCYA1HK-821	CAPACITOR
C121	QEP1CM-475	NP E CAPACITOR
C123	QER40JM-226	E CAPACITOR
C124	QER41HM-105	E CAPACITOR
C126	QER41EM-475	E CAPACITOR
C127	QCYA1HK-153	CAPACITOR
C128	QER41AM-336	E CAPACITOR
C129	QER41AM-336	E CAPACITOR
C130	QER41HM-225	E CAPACITOR
C131	QCYA1HK-183	CAPACITOR
C132	QCYA1HK-153	CAPACITOR
C133	QER40JM-226	E CAPACITOR
C134	QCSA1HJ-151	CAPACITOR
C135	QCYA1HK-103	CAPACITOR
C136	QCSA1HJ-821	CAPACITOR
C137	QCYA1HK-152	CAPACITOR
C138	QCSA1HJ-821	CAPACITOR
C139	QEP1CM-475	NP E CAPACITOR
C141	QER40JM-226	E CAPACITOR
C142	QER41HM-105	E CAPACITOR
C144	QER41CM-106	E CAPACITOR
C145	QCYA1HK-153	CAPACITOR
C146	QER41AM-336	E CAPACITOR
C147	QER41AM-336	E CAPACITOR
C148	QER40JM-107	E CAPACITOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

C188	QEPA1CM-475	NP E CAPACITOR
C189	QEPA1CM-475	NP E CAPACITOR
C194	QER41HM-474	E CAPACITOR
C201	QER41HM-105	E CAPACITOR
C212	QEK41AM-227	E CAPACITOR
C214	QER40JM-226	E CAPACITOR
C259	QER41CM-106	E CAPACITOR
C260	QER41CM-106	E CAPACITOR
C261	QER41CM-106	E CAPACITOR
C262	QER41CM-106	E CAPACITOR
C263	QER41CM-106	E CAPACITOR
C264	QER41CM-106	E CAPACITOR
C265	QER41CM-106	E CAPACITOR
C266	QER41CM-106	E CAPACITOR
C267	QER41CM-106	E CAPACITOR
C269	QCYA1HJ-153	CAPACITOR
C270	QCYA1HJ-153	CAPACITOR
C271	QCYA1HJ-153	CAPACITOR
C272	QCYA1HJ-153	CAPACITOR
L7	PGZ00638-152	COIL
L8	PGZ00638-152	COIL
SW1	PU54440	SWITCH
CN16	PGZ00723-11	CONNECTOR
CN17	PGZ00723-10	CONNECTOR
CN18	PU58844-102	CAP HOUSING

 * 6.2.6 FM A PREAMP BOARD ASSY 06 *

PWBA	PGE30099B	FM A PRE AMP BOARD ASSEMBLY
IC1	HA11752MP	IC
Q1	2SC2412K	TRANSISTOR
Q2	2SC2412K	TRANSISTOR
Q3	2SD1328S,T	TRANSISTOR
Q4	FMW3	TRANSISTOR
R1	QRSA08J-472YN	RESISTOR
R2	QRSA08J-223YN	RESISTOR
R3	QRSA08J-272YN	RESISTOR
R4	QRSA08J-561YN	RESISTOR
R5	QRSA08J-561YN	RESISTOR
R6	QRSA08J-472YN	RESISTOR
R7	QRSA08J-272YN	RESISTOR
R8	QRSA08J-223YN	RESISTOR
R9	QRSA08J-224YN	RESISTOR
R10	QRSA08J-561YN	RESISTOR
R11	QRSA08J-223YN	RESISTOR
R12	QRSA08J-681YN	RESISTOR
R13	QRSA08J-102YN	RESISTOR
R14	QRSA08J-681YN	RESISTOR
R15	QRSA08J-223YN	RESISTOR
R16	QRSA08J-681YN	RESISTOR
R17	QRSA08J-392YN	RESISTOR
R18	QRSA08J-392YN	RESISTOR
R19	QRSA08J-100YN	RESISTOR
R20	QRSA08J-100YN	RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R21	QRSA08J-271YN	RESISTOR
C1	QER40JM-107	E CAPACITOR
C2	QCYA1HK-103	CAPACITOR
C3	QCSA1HJ-220	CAPACITOR
C4	QCYA1HK-102	CAPACITOR
C5	QCYA1HK-102	CAPACITOR
C6	QCYA1HK-103	CAPACITOR
C7	QCYA1HK-223	CAPACITOR
C8	QCYA1HK-103	CAPACITOR
C9	QER40JM-107	E CAPACITOR
C10	QCSA1HJ-221	CAPACITOR
C11	QCSA1HJ-561	CAPACITOR
C12	QER41HM-224	E CAPACITOR
C13	QCYA1HK-223	CAPACITOR
C14	QCYA1HK-223	CAPACITOR
C15	QCSA1HJ-221	CAPACITOR
C16	QCSA1HJ-561	CAPACITOR
C17	QCYA1HK-223	CAPACITOR
C18	QCSA1HJ-331	CAPACITOR
C19	QCSA1HJ-820	CAPACITOR
C20	QER40JM-107	E CAPACITOR
C21	QCYA1HK-103	CAPACITOR
C22	QCYA1HK-103	CAPACITOR
C23	QCYA1HK-103	CAPACITOR
C24	QCYA1HK-223	CAPACITOR

L1	PGZ00638-101	COIL
L2	PGZ00638-101	COIL
L3	PGZ00638-101	COIL
L4	PGZ00637-221	COIL

SLD1 PGD40845-01-01 SHIELD CASE

TP1	PU56008	TEST PIN
TP2	PU56008	TEST PIN

CN2 PGZ00624 CONNECTOR

 * 6.2.7 REGULATOR BOARD ASSY 07 *

PWBA	PGE30158A	REGURATOR BOARD ASSEMBLY
Q1	2SC1545A,B	TRANSISTOR
Q2	2SC1545A,B	TRANSISTOR
D1	1SS133	DIODE
D2	1SS133	DIODE
D3	1SS99	DIODE
R1	QRD167J-104	RESISTOR
R2	QRD167J-104	RESISTOR
R3	QRD167J-104	RESISTOR
R4	QRD167J-104	RESISTOR
C1	QEU41CM-337	E CAPACITOR
C2	QEU41CM-107	E CAPACITOR
C3	PU57601-226KC	OS CAPACITOR
C4	PU57601-226KC	OS CAPACITOR
C5	PU57601-226KC	OS CAPACITOR
C6	PU57601-226KC	OS CAPACITOR

A DD1 PGZ00938A DC-DC CONVERTER

A RY1 PU56400-2 RELAY

0708

#△ REF NO. PART NO. PART NAME, DESCRIPTION

TP1	PU56008	TEST POINT, X5(TP1-5)
CN1	PU43351-104	CAP HOUSING
CN2	PU58844-9	CAP HOUSING
CN3	PU58844-105	CAP HOUSING
CN4	PU58844-104	CAP HOUSING
CN5	PU58844-105R	CAP HOUSING
CN6	PU43351-4	CAP HOUSING

△ CP1	ICP-F38	CIRCUIT PROTECTOR
△ CP2	ICP-F38	CIRCUIT PROTECTOR
△ CP3	ICP-F10	CIRCUIT PROTECTOR

 * 6.2.8 SYSCON BOARD ASSY 08 *

PWBA	PGE20209A-03	SYSCON BOARD ASSEMBLY
------	--------------	-----------------------

IC1	TC40H166F	IC
IC2	TC40H166F	IC
IC3	TC40H166F	IC
IC4	TC40H166F	IC
IC5	IR3702N1	IC
IC6	14VT08A	IC
IC7	NJM2903M	IC
△ IC8	PGD30410-G03-03	IC
	OR HD6301Y0RJ67P	IC
IC9	TC4584BF	IC
△ IC10	UPD7564G-505	IC

IC11	TC4528BF	IC
IC12	M51953AL	IC
IC13	TC4526BF	IC
IC14	TC4526BF	IC
IC15	TC4094BF	IC
IC16	BA6109U3	IC
△ IC17	S-81250HG	IC
IC18	TC4050BF	IC
IC19	TC4094BF	IC
IC20	TC4050BF	IC

IC21	M51946AL	IC
------	----------	----

Q1	DTC124ES	TRANSISTOR
Q2	DTC124ES	TRANSISTOR
Q3	DTC124ES	TRANSISTOR
Q4	DTC124ES	TRANSISTOR
Q5	DTC124ES	TRANSISTOR
Q6	DTA124ES	TRANSISTOR
Q7	DTC124ES	TRANSISTOR
Q8	DTC124ES	TRANSISTOR
Q9	DTA124ES	TRANSISTOR
Q10	DTC124ES	TRANSISTOR

Q11	DTA124ES	TRANSISTOR
Q12	DTA144ES	TRANSISTOR
Q13	DTA144ES	TRANSISTOR
Q14	DTC124ES	TRANSISTOR
Q15	DTC124ES	TRANSISTOR
Q16	DTC124ES	TRANSISTOR
Q17	DTC124ES	TRANSISTOR
Q18	DTC124ES	TRANSISTOR
Q19	DTC124ES	TRANSISTOR
Q20	DTC124ES	TRANSISTOR

Q21	DTC124ES	TRANSISTOR
-----	----------	------------

#△ REF NO. PART NO. PART NAME, DESCRIPTION

Q22	DTC124ES	TRANSISTOR
Q23	DTC124ES	TRANSISTOR
Q24	DTC124ES	TRANSISTOR
Q25	DTC124ES	TRANSISTOR
Q26	DTC124ES	TRANSISTOR
Q27	DTC124ES	TRANSISTOR
Q28	DTC124ES	TRANSISTOR
Q29	DTC124ES	TRANSISTOR
Q30	DTC124ES	TRANSISTOR

Q31	DTC124ES	TRANSISTOR
Q32	DTC124ES	TRANSISTOR
Q33	2SD636R	TRANSISTOR
△ Q34	DTA114EF	TRANSISTOR
Q35	DTC124ES	TRANSISTOR
Q36	DTA124ES	TRANSISTOR
Q37	DTC124ES	TRANSISTOR
Q38	DTC124ES	TRANSISTOR
Q39	DTC144EF	TRANSISTOR
Q40	DTA124ES	TRANSISTOR

Q42	DTC124ES	TRANSISTOR
Q43	DTA124ES	TRANSISTOR
Q44	DTC124ES	TRANSISTOR

D1	1SS133	DIODE
D2	1SS133	DIODE
D3	RD9.1EB2	ZENER DIODE
D4	RD5.1EB2	ZENER DIODE
D5	1SS133	DIODE
D6	RD12EB1	ZENER DIODE
D7	RD9.1EB2	ZENER DIODE
D8	1SS133	DIODE
D9	HZ48LL	ZENER DIODE

LD1	GL-3HD6	LE DIODE
LD2	GL-3HD6	LE DIODE
LD3	GL-3HD6	LE DIODE
LD4	GL-3HD6	LE DIODE
LD5	GL-3HD6	LE DIODE
LD6	GL-3HD6	LE DIODE
LD7	GL-3HD6	LE DIODE

D10	RD2.7EB1	ZENER DIODE
-----	----------	-------------

D11	RD5.1EB1	ZENER DIODE
D13	1SS133	DIODE
D14	1SS133	DIODE
D15	1SS133	DIODE
D16	1SS133	DIODE

R1	QRD167J-473	RESISTOR
R2	QRD167J-473	RESISTOR
R3	QRD167J-333	RESISTOR
R4	QRD167J-333	RESISTOR
R5	QRD167J-103	RESISTOR
R6	QRD167J-103	RESISTOR
R7	QRD167J-103	RESISTOR
R8	QRD167J-103	RESISTOR
R9	QRD167J-562	RESISTOR
R10	QRD167J-562	RESISTOR

R11	QRD167J-223	RESISTOR
R12	QRD167J-223	RESISTOR
R13	QRD167J-471	RESISTOR
R14	QRD167J-102	RESISTOR
R15	QRD167J-223	RESISTOR
R16	QRD167J-223	RESISTOR
R17	QRD167J-471	RESISTOR
R18	QRD167J-102	RESISTOR
R19	QRD167J-102	RESISTOR
R20	QRD167J-102	RESISTOR

R21	QRD167J-224	RESISTOR
-----	-------------	----------

#△	REF NO.	PART NO.	PART NAME, DESCRIPTION	#△	REF NO.	PART NO.	PART NAME, DESCRIPTION
	R22	QRD167J-474	RESISTOR		R92	QRD167J-102	RESISTOR
	R23	QRD167J-104	RESISTOR		R93	QRD167J-102	RESISTOR
	R24	QRD167J-823	RESISTOR		R94	QRD167J-102	RESISTOR
	R25	QRD167J-221	RESISTOR		R95	QRD167J-102	RESISTOR
	R26	QRD167J-103	RESISTOR		R96	QRD167J-102	RESISTOR
	R27	QRD167J-333	RESISTOR		R97	QRD167J-102	RESISTOR
	R28	QRD167J-562	RESISTOR		R98	QRD167J-102	RESISTOR
	R29	QRD167J-682	RESISTOR		R99	QRD167J-102	RESISTOR
	R30	QRD167J-682	RESISTOR		R100	QRD167J-102	RESISTOR
	R31	QRD167J-221	RESISTOR		R101	QRD167J-102	RESISTOR
	R32	QRD167J-221	RESISTOR		R102	QRD167J-102	RESISTOR
	R33	QRD167J-101	RESISTOR		R103	QRD167J-102	RESISTOR
	R34	QRD167J-101	RESISTOR		R104	QRD167J-103	RESISTOR
	R35	QRD167J-333	RESISTOR		R105	QRD167J-391	RESISTOR
	R36	QRD167J-472	RESISTOR		R106	QRD167J-391	RESISTOR
	R37	QRD167J-333	RESISTOR		R107	QRD167J-102	RESISTOR
	R38	QRD167J-391	RESISTOR		R108	QRD167J-102	RESISTOR
	R40	QRD167J-104	RESISTOR		R109	QRD167J-102	RESISTOR
	R41	QRD167J-103	RESISTOR		R110	QRD167J-102	RESISTOR
	R42	QRD167J-103	RESISTOR		R111	QRD167J-102	RESISTOR
	R43	QRD167J-103	RESISTOR		R112	QRD167J-102	RESISTOR
	R44	QRD167J-103	RESISTOR		R113	QRD167J-102	RESISTOR
	R47	QRD167J-103	RESISTOR		R114	QRD167J-102	RESISTOR
	R48	QRD167J-103	RESISTOR		R115	QRD167J-102	RESISTOR
	R49	QRD167J-103	RESISTOR		R116	QRD167J-102	RESISTOR
	R50	QRD167J-103	RESISTOR		R117	QRD167J-333	RESISTOR
	R51	QRD167J-103	RESISTOR		R118	QRD167J-391	RESISTOR
	R52	QRD167J-103	RESISTOR		R119	QRD167J-154	RESISTOR
	R53	QRD167J-103	RESISTOR		R120	QRD167J-471	RESISTOR
	R54	QRD167J-103	RESISTOR		R121	QRD167J-391	RESISTOR
	R55	QRD167J-103	RESISTOR		R122	QRD167J-103	RESISTOR
	R56	QRD167J-103	RESISTOR		R123	QRD167J-333	RESISTOR
	R57	QRD167J-333	RESISTOR		R124	QRD167J-333	RESISTOR
	R58	QRD167J-103	RESISTOR		R125	QRD167J-103	RESISTOR
	R59	QRD167J-473	RESISTOR		R126	QRD167J-473	RESISTOR
	R60	QRD167J-473	RESISTOR		R129	QRD167J-562	RESISTOR
	R61	QRD167J-104	RESISTOR		R130	QRD167J-624	RESISTOR
	R62	QRD167J-152	RESISTOR		R131	QRD167J-474	RESISTOR
	R63	QRD167J-392	RESISTOR		R132	QRD161J-333	RESISTOR
	R64	QRD167J-103	RESISTOR		RA2	RGLO3X104J	RESISTOR ARRAY
	R65	PU57457-473	V RESISTOR , BATT DOWN DETECT		RA3	RGLO4X103J	RESISTOR ARRAY
	R66	QRD167J-103	RESISTOR		RA4	RGLO4X103J	RESISTOR ARRAY
	R67	QRV147F-2742A	CMF RESISTOR		RA5	EXB-LD4103G	RESISTOR ARRAY
	R68	QRV147F-6810A	CMF RESISTOR		C1	QFN41HJ-103	M CAPACITOR
	R69	QRV147F-1002A	CMF RESISTOR		C2	QFN41HJ-103	M CAPACITOR
	R70	QRD167J-105	RESISTOR		C3	QFN41HJ-103	M CAPACITOR
	R71	QRD167J-105	RESISTOR		C4	QFN41HJ-103	M CAPACITOR
	R72	QRD167J-333	RESISTOR		C5	QER41CM-226	E CAPACITOR
	R73	QRD167J-333	RESISTOR		C6	QFN41HJ-103	M CAPACITOR
	R74	QRD167J-182	RESISTOR		C7	QCF11HP-103	CAPACITOR
	R75	QRD167J-182	RESISTOR		C8	QCF11HP-103	CAPACITOR
	R76	QRD167J-182	RESISTOR		C9	QCF11EZ-472	CAPACITOR
	R77	QRD167J-182	RESISTOR		C10	QFN41HJ-103	M CAPACITOR
	R78	QRD167J-182	RESISTOR		C11	QFN41HJ-103	M CAPACITOR
	R79	QRD167J-182	RESISTOR		△ C12	QCS11HJ-220	CAPACITOR
	R80	QRD167J-333	RESISTOR		△ C13	QCS11HJ-220	CAPACITOR
	R81	QRD167J-333	RESISTOR		C14	QEE41VM-224	TANTAL CAPACITOR
	R82	QRD167J-182	RESISTOR		C15	QEE41VM-474	TANTAL CAPACITOR
	R83	QRD167J-182	RESISTOR		C16	QFN41HJ-103	M CAPACITOR
	R84	QRD167J-182	RESISTOR		C17	QEP41HM-105	NP E CAPACITOR
	R85	QRD167J-182	RESISTOR		C18	QFN41HJ-103	M CAPACITOR
	R86	QRD167J-182	RESISTOR		C19	PU58948-104	CAPACITOR
	R87	QRD167J-182	RESISTOR		C20	QER40JM-476	E CAPACITOR
	R88	QRD167J-182	RESISTOR		C21	QER41CM-476	E CAPACITOR
	R89	QRD167J-102	RESISTOR		C22	QER40JM-107	E CAPACITOR
	R90	QRD167J-102	RESISTOR		C23	QER41CM-476	E CAPACITOR
	R91	QRD167J-102	RESISTOR				

08 09 10 13

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
△ C24	QCS11HJ-101	CAPACITOR
△ C25	QCS11HJ-101	CAPACITOR
C26	QER41EM-475	E CAPACITOR
C27	PU58948-104	CAPACITOR
C28	PU58948-104	CAPACITOR
C29	PU58948-104	CAPACITOR
△ CF1	PU49487-2	RESONATOR
△ X1	PGZ00580	CRYSTAL RESONATOR
S1	PU53598	TACT SWITCH
S2	PU53598	TACT SWITCH
S3	PU53598	TACT SWITCH
S4	PU53598	TACT SWITCH
S5	PU53598	TACT SWITCH
S6	PU53598	TACT SWITCH
S7	PU53598	TACT SWITCH
S8	PU53598	TACT SWITCH
S9	PGZ00581	SLIDE SWITCH
△ TH1	PU52108-2R2	POSISTOR
HD1	PU50634-3	LED HOLDER, X7
△ VA1	PU49624-2	VARISTOR
△ VA2	PU49624-2	VARISTOR
△ VA3	PU49624-2	VARISTOR
△ VA4	PU49624-2	VARISTOR
△ VA5	PU49624-2	VARISTOR
△ VA6	PU49624-2	VARISTOR
△ VA7	PU49624-2	VARISTOR
VA8	PU49624-2	VARISTOR
TP1	PU56008	TEST PIN
TP2	PU56008	TEST PIN
TP3	PU56008	TEST PIN
TP4	PU45908-3	TEST PIN
CN1	PU58844-11R	CAP HOUSING
CN2	PU58844-10Y	CAP HOUSING
CN3	PU58844-111Y	CAP HOUSING
CN4	PU58844-110	CAP HOUSING
CN5	PU58844-104	CAP HOUSING
CN6	PU58844-102R	CAP HOUSING
CN7	PU58844-3R	CAP HOUSING
CN8	PU58844-3	CAP HOUSING
CN9	PU54537-2	CAP HOUSING
CN10	PU54537-2	CAP HOUSING
CN11	PU58844-102Y	CAP HOUSING
CN12	PU58844-102	CAP HOUSING
CN13	PU58844-2	CAP HOUSING
CN14	PU58844-2	CAP HOUSING
CN15	PU58844-11	CAP HOUSING
CN17	PU58844-113	CAP HOUSING
CN18	PU58844-109	CAP HOUSING
CN19	PU58844-102	CAP HOUSING
CN20	PU58844-2	CAP HOUSING
CN22	PU58844-2R	CAP HOUSING
△ CP1	ICP-F15	CIRCUIT PROTECTOR
△ CP2	ICP-F15	CIRCUIT PROTECTOR

* 6.2.9 ERASE BOARD ASSY 09 *

PWBA PGE40238A ERASE BOARD ASSY

#△ REF NO.	PART NO.	PART NAME, DESCRIPTION
IC1	3VT01	IC
Q1	2SD973AR	TRANSISTOR
Q2	2SD639S	TRANSISTOR
Q3	2SD639S	TRANSISTOR
D1	RD9.1EB2	ZENER DIODE
R1	QRD167J-152	RESISTOR
R2	QRD167J-104	RESISTOR
R3	QRD167J-104	RESISTOR
R4	QRD167J-121	RESISTOR
R5	QRD167J-121	RESISTOR
C1	QFN41HJ-393	M CAPACITOR
C2	QCF11HP-103	CAPACITOR
C3	QCS11HJ-820	CAPACITOR
C4	QCS11HJ-820	CAPACITOR
C5	QCS11HJ-560	CAPACITOR
C7	QCF11HP-103	CAPACITOR
C8	QCT05CH-560	CAPACITOR
L1	PU59152-220J	PEAKING COIL
L3	PU56175	STEP UP TRANS
SLD1	PGD40933	SHIELD CASE(1)
SLD2	PGD40934	SHIELD CASE(2)
SPC1	PGD40935	SPACER
CN1	PU58844-102	CAP HOUSING
CN2	PU58844-3	CAP HOUSING
CN3	PU58844-102R	CAP HOUSING
CN4	PU58844-103R	CAP HOUSING

* 6.2.10 FULL ERASE HEAD BOARD 10 *

PWB PGE40185 FE HEAD BOARD

* 6.2.11 XLR BOARD ASSY 13 *

PWBA	PRK20029A-01	XLR BOARD ASSY
IC1	NJM2068MD	IC
IC2	NJM2068MD	IC
IC3	NJM4556MB	IC
IC4	NJM4556MB	IC
IC5	NJM5532D-D	IC
IC6	NJM5532D-D	IC
Q1	DTC114EF	TRANSISTOR
Q2	2SD639R,S	TRANSISTOR
Q3	2SD639R,S	TRANSISTOR
Q4	2SD639R,S	TRANSISTOR
Q5	2SD639R,S	TRANSISTOR
Q6	2SB709(R)	TRANSISTOR
Q7	2SB709(R)	TRANSISTOR
Q8	2SD601(R)	TRANSISTOR
D1	DA204K	DIODE

#A REF NO. PART NO. PART NAME, DESCRIPTION

R1 QRSA08J-272YN RESISTOR
R2 QRSA08J-222YN RESISTOR
R3 QRSA08J-681YN RESISTOR
R4 QRSA08J-222YN RESISTOR
R5 QRSA08J-272YN RESISTOR
R6 QRSA08J-472YN RESISTOR
R7 QRSA08J-223YN RESISTOR
R8 QRSA08J-223YN RESISTOR
R9 QRSA08J-473YN RESISTOR
R10 QRSA08J-473YN RESISTOR

R11 QRSA08J-103YN RESISTOR
R12 QRSA08J-103YN RESISTOR
R13 QRSA08J-101YN RESISTOR
R14 QRSA08J-392YN RESISTOR
R15 QRSA08J-334YN RESISTOR
R16 QRSA08J-154YN RESISTOR
R18 QRSA08J-472YN RESISTOR
R19 QRSA08J-472YN RESISTOR
R20 QRSA08J-473YN RESISTOR

R21 QRSA08J-473YN RESISTOR
R22 QRSA08J-104YN RESISTOR
R23 QRSA08J-104YN RESISTOR
R24 QRSA08J-104YN RESISTOR
R25 QRSA08J-104YN RESISTOR
R26 QRSA08J-272YN RESISTOR
R27 QRSA08J-222YN RESISTOR
R28 QRSA08J-681YN RESISTOR
R29 QRSA08J-222YN RESISTOR
R30 QRSA08J-272YN RESISTOR

R31 QRSA08J-472YN RESISTOR
R32 QRSA08J-223YN RESISTOR
R33 QRSA08J-223YN RESISTOR
R34 QRSA08J-473YN RESISTOR
R35 QRSA08J-473YN RESISTOR
R36 QRSA08J-103YN RESISTOR
R37 QRSA08J-103YN RESISTOR
R38 QRSA08J-101YN RESISTOR
R39 QRSA08J-392YN RESISTOR
R40 QRSA08J-334YN RESISTOR

R41 QRSA08J-154YN RESISTOR
R43 QRSA08J-472YN RESISTOR
R44 QRSA08J-472YN RESISTOR
R45 QRSA08J-473YN RESISTOR
R46 QRSA08J-473YN RESISTOR
R47 QRSA08J-223YN RESISTOR
R48 QRSA08J-223YN RESISTOR
R49 QRSA08J-223YN RESISTOR
R50 QRSA08J-103YN RESISTOR

R51 QRSA08J-103YN RESISTOR
R52 QRSA08J-223YN RESISTOR
R53 QRSA08J-473YN RESISTOR
R54 QRSA08J-223YN RESISTOR
R55 QRSA08J-223YN RESISTOR
R56 QRSA08J-223YN RESISTOR
R57 QRSA08J-223YN RESISTOR
R58 QRSA08J-473YN RESISTOR
R59 QRSA08J-332YN RESISTOR
R60 QRSA08J-332YN RESISTOR

R61 QRSA08J-681YN RESISTOR
R62 QRSA08J-681YN RESISTOR
R63 QRSA08J-103YN RESISTOR
R64 QRSA08J-103YN RESISTOR
R65 QRSA08J-103YN RESISTOR
R66 QRSA08J-103YN RESISTOR
R67 QRSA08F-332YN RESISTOR
R68 QRSA08F-332YN RESISTOR
R69 QRSA08F-332YN RESISTOR
R70 QRSA08F-332YN RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R71 QRV141F-5111A CMF RESISTOR
R73 QRD167J-470 RESISTOR
R74 QRV141F-4701A CMF RESISTOR
R75 QRV141F-5601A CMF RESISTOR
R76 QVPC402-102 V RESISTOR
R77 QRV141F-4701A CMF RESISTOR
R78 QRD167J-470 RESISTOR
R79 QRSA08F-332YN RESISTOR
R80 QRSA08F-332YN RESISTOR

R81 QRSA08F-332YN RESISTOR
R82 QRSA08F-332YN RESISTOR
R83 QRV141F-5111A CMF RESISTOR
R85 QRD167J-470 RESISTOR
R86 QRV141F-4701A CMF RESISTOR
R87 QRV141F-5601A CMF RESISTOR
R88 QVPC402-102 V RESISTOR
R89 QRV141F-4701A CMF RESISTOR
R90 QRD167J-470 RESISTOR

R91 QRSA08J-103YN RESISTOR
R92 QRSA08J-103YN RESISTOR
R93 QRSA08J-103YN RESISTOR
R94 QRSA08J-103YN RESISTOR
R95 QRSA08J-472YN RESISTOR
R96 QRSA08J-472YN RESISTOR
R97 QRSA08J-472YN RESISTOR
R98 QRSA08J-472YN RESISTOR
R99 QRSA08J-103YN RESISTOR
R100 QRSA08J-123YN RESISTOR

R101 QRSA08J-473YN RESISTOR
R102 QRSA08J-473YN RESISTOR

C1 QCYA1HK-102 CAPACITOR
C2 QEE41AM-475 TANTAL CAPACITOR
C3 QEE41AM-475 TANTAL CAPACITOR
C4 QER41CM-106 E CAPACITOR
C5 QEPA1AM-226 NP E CAPACITOR
C6 QCSA1HJ-330 CAPACITOR
C7 QCSA1HJ-330 CAPACITOR
C8 QEK41AM-107 E CAPACITOR
C9 QER41CM-106 E CAPACITOR
C10 QER41CM-106 E CAPACITOR

C11 QEPA1AM-106 NP E CAPACITOR
C12 QEPA1AM-106 NP E CAPACITOR
C13 QEPA1AM-106 NP E CAPACITOR
C14 QEPA1AM-106 NP E CAPACITOR
C15 QCYA1HK-102 CAPACITOR
C16 QEE41AM-475 TANTAL CAPACITOR
C17 QEE41AM-475 TANTAL CAPACITOR
C18 QER41CM-106 E CAPACITOR
C19 QEPA1AM-226 NP E CAPACITOR
C20 QCSA1HJ-330 CAPACITOR

C21 QCSA1HJ-330 CAPACITOR
C22 QEK41AM-107 E CAPACITOR
C23 QER41CM-106 E CAPACITOR
C24 QER41CM-106 E CAPACITOR
C27 QER40JM-226 E CAPACITOR
C28 QEK41AM-107 E CAPACITOR
C29 QCSA1HJ-470 CAPACITOR

C32 QCSA1HJ-470 CAPACITOR
C33 QER41CM-106 E CAPACITOR
C34 QER41CM-106 E CAPACITOR
C36 QEK41AM-107 E CAPACITOR
C37 QEK41AM-107 E CAPACITOR
C38 QEK41AM-107 E CAPACITOR
C39 QEK41AM-107 E CAPACITOR
C40 QEK41AM-107 E CAPACITOR

13 14 15 16

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
C41	QEK41AM-107	E	CAPACITOR
C42	QEK41AM-107	E	CAPACITOR
C43	QEK41AM-227	E	CAPACITOR
C44	QER41CM-106	E	CAPACITOR
C45	QCSA1HJ-330	CAPACITOR	
C46	QCSA1HJ-330	CAPACITOR	
C47	QCSA1HJ-330	CAPACITOR	
C48	QCSA1HJ-330	CAPACITOR	
C49	QER41CM-106	E	CAPACITOR
C50	QER41CM-106	E	CAPACITOR
C51	QER41CM-106	E	CAPACITOR
C52	QER41CM-106	E	CAPACITOR
SW1	QSS1A43-L01	SLIDE SWITCH	
SW2	QSS1A43-L01	SLIDE SWITCH	
SW3	QSS1A42-L01	SLIDE SWITCH	
SW4	QSS1A42-L01	SLIDE SWITCH	
SW5	QSS1A42-L01	SLIDE SWITCH	
VA1	PU49624-2	VARISTOR	
VA2	PU49624-2	VARISTOR	
VA3	PU49624-2	VARISTOR	
VA4	PU49624-2	VARISTOR	
VA5	PU49624-2	VARISTOR	
CN1	PU58844-106R	CAP HOUSING	
CN2	PU58844-110	CAP HOUSING	
CN3	PU58844-106	CAP HOUSING	
CN4	PU58844-10R	CAP HOUSING	
CN5	PU58844-7R	CAP HOUSING	
CN6	PU58844-2	CAP HOUSING	

* 6.2.12 AUDIO CONNECTOR BOARD ASSY 14 *			

PWBA	PGE40273A-02	AUDIO CONNECTOR ASSY	
L1	PU48530-8R2K	COIL, X4, (L1-L4)	
VA1	PU49624-2	VARISTOR, X4, (VA1-VA4)	
CN1	PU58844-106	CAP HOUSING	
CN2	PGZ00928	XLR CONNECTOR	
CN3	PGZ00928	XLR CONNECTOR	

* 6.2.13 SWITCH BOARD ASSY 15 *			

PWBA	PGE30055A-05	SWITCH BOARD ASSY	
R1	PGZ00687	V RESISTOR, NORMAL AUD-1	
R2	PGZ00687	V RESISTOR, NORMAL AUD-2	
R3	PGZ00688	V RESISTOR, FM AUD-1	
R4	PGZ00688	V RESISTOR, FM AUD-2	
R5	PGZ00688	V RESISTOR, MONITOR LEV	
R6	PGZ00759	V RESISTOR, TRACKING	
R7	QRD161J-222	RESISTOR	
S1	PU57908	SLIDE SWITCH	
S2	PU57908	SLIDE SWITCH	
S3	PU57908	SLIDE SWITCH	
S4	PU57908	SLIDE SWITCH	
S5	PU57956	SLIDE SWITCH	

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
S6	PGZ00766	SLIDE SWITCH	
S7	PGZ00766	SLIDE SWITCH	
S8	PU57908	SLIDE SWITCH	
CN1	PU58844-104	CAP HOUSING	
CN2	PU58844-107	CAP HOUSING	
CN3	PU58844-110Y	CAP HOUSING	
CN4	PU58844-105	CAP HOUSING	
CN5	PU58844-102Y	CAP HOUSING	
CN6	PU58844-102R	CAP HOUSING	
CN7	PU58844-102	CAP HOUSING	

* 6.2.14 VIDEO PREAMP BOARD ASSY 16 *			

PWBA	PGE20243A-01	VIDEO PRE AMP BOARD ASSY	
IC1	HA11782	IC	
Q1	2SC2778C	TRANSISTOR	
Q2	2SC2778C	TRANSISTOR	
Q3	2SC2778C	TRANSISTOR	
Q4	2SC2778C	TRANSISTOR	
R1	QRSA08J-3R9YN	C RESISTOR	
R2	QRSA08J-390YN	RESISTOR	
R3	QRSA08J-390YN	RESISTOR	
R4	QRSA08J-3R9YN	C RESISTOR	
R5	QRSA08J-122YN	RESISTOR	
R6	QRSA08J-122YN	RESISTOR	
R7	QRSA08J-122YN	RESISTOR	
R8	QRSA08J-122YN	RESISTOR	
R9	QRSA08J-104YN	RESISTOR	
R10	QRSA08J-103YN	RESISTOR	
R11	QRSA08J-123YN	RESISTOR	
R12	QRSA08J-123YN	RESISTOR	
R13	QRSA08J-104YN	RESISTOR	
R14	QRSA08J-103YN	RESISTOR	
R15	PU57457-682	V RESISTOR, PB CH BAL	
R16	QRSA08J-101YN	RESISTOR	
R17	QRSA08J-333YN	RESISTOR	
R18	QRSA08J-681YN	RESISTOR	
R19	QRSA08J-681YN	RESISTOR	
R20	PU57457-471	RESISTOR	
R21	PU57457-471	RESISTOR	
C1	QEE41EM-105	T CAPACITOR	
C2	QEE41EM-105	T CAPACITOR	
C3	QCYA1HK-223	CAPACITOR	
C4	QCYA1HK-223	CAPACITOR	
C5	QCYA1HK-223	CAPACITOR	
C6	QCYA1HK-223	CAPACITOR	
C7	QCYA1HK-223	CAPACITOR	
C8	QCYA1HK-223	CAPACITOR	
C9	QCYA1HK-223	CAPACITOR	
C10	QCYA1HK-223	CAPACITOR	
C11	QCYA1HK-223	CAPACITOR	
C12	QCYA1HK-223	CAPACITOR	
C13	QCYA1HK-223	CAPACITOR	
C14	QCYA1HK-223	CAPACITOR	
C15	QER40JM-476	E CAPACITOR	
C16	QCYA1HK-223	CAPACITOR	
C17	QER40JM-476	E CAPACITOR	
C18	QCYA1HK-223	CAPACITOR	
C19	QCYA1HK-223	CAPACITOR	
C20	QCYA1HK-223	CAPACITOR	

27 26 25 23 22 19 18 16

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	C21	QCT05CH-100	CAPACITOR
	C22	PU57458-500	TRIMMER CAPACITOR , 2CH F
	C23	QCT05CH-100	CAPACITOR
	C24	PU57458-500	TRIMMER CAPACITOR , 1CH F
	L1	PU53223-101G	PEAKING COIL
	L2	PU53223-101G	PEAKING COIL
	L3	PU53223-4R7G	PEAKING COIL
	L4	PU53223-4R7G	PEAKING COIL
	SLD1	PRD42031-01-01	SHIELD CASE(1)
	SLD2	PRD42032	SHIELD CASE(2)
	SLD3	PRD42205	SHEET
	SLD4	PRD42103	SHEET
	W1	PGZ00641	S.CABLE
	TP4	PU56008	TEST-PIN
	CN1	PU58844-9	CAP HOUSING
	CN2	PU59974-11	CAP HOUSING
	CN3	PGZ00642-05	CONNECTOR
	CN4	PU58844-3	CAP HOUSING

* 6.2.15 START SENSOR BOARD ASSY 18 *			

	PWBA	PGE40156A	START SENSOR BOARD ASSY
	PT1	PN207TR	PHOTO TRANSISTOR
	C1	QCF11HP-473	CAPACITOR

* 6.2.16 END SENSOR BOARD ASSY 19 *			

	PWBA	PGE40157A	END SENSOR BOARD ASSY
	PT1	PN207TR	PHOTO TRANSISTOR
	C1	QCF11HP-473	CAPACITOR

* 6.2.17 DC IN BOARD ASSY 22 *			

	PWBA	PGE40120A-02	DC IN BOARD ASSY
	PW88	PGE40120-01-03	DC IN BOARD

* 6.2.18 VIDEO OUTPUT BOARD ASSY 23 *			

	PWBA	PGE40100A-04	VIDEO OUT BOARD ASSY

#	REF NO.	PART NO.	PART NAME, DESCRIPTION
	VA1	PU49624-2	VARISTOR
	VA2	PU49624-2	VARISTOR
	VA3	PU49624-2	VARISTOR

* 6.2.19 FUSE BOARD ASSY 25 *			

	PWBA	PGE40239A	FUSE BOARD ASSEMBLY
	D1	D10SC3M	DIODE
	D2	D10SC3M	DIODE
	BKT1	PGD40771	FUSE BOARD BRACKET
	HD1	PU51212	FUSE CLIP

* 6.2.20 MAIN SWITCH BOARD ASSY 26 *			

	PWBA	PGE40244A	MAIN SWITCH BOARD ASSEMBLY
	SW1	PGZ00597	MAIN SWITCH
	BKT1	PGD40930	SWITCH BRACKET

* 6.2.21 OPERATION BUTTON BOARD ASSY 27 *			

	PWBA	PGE40121A-01	OPERATION BUTTON BOARD ASSY
	IC1	M51953AL	IC
	Q1	OTC124EF	TRANSISTOR
	Q2	OTC124EF	TRANSISTOR
	Q3	2SK656	FE TRANSISTOR
	D1	1SS133	DIODE
	R1	QRD167J-104	RESISTOR
	R2	QRD167J-123	RESISTOR
	R3	QRD167J-123	RESISTOR
	R4	QRD167J-333	RESISTOR
	R5	QRD167J-101	RESISTOR
	R6	QRD167J-821	RESISTOR
	C1	QER41CM-106	E CAPACITOR
	C2	QER41HM-474	E CAPACITOR
	C3	QEE41VM-225	TANTAL CAPACITOR
	C4	QCF11HP-472	CAPACITOR
	C5	PGZ00781-333	SUPER CAP
	SW1	PU53598	TACT SWITCH
	CN1	PU58844-5	CAP HOUSING
	CN2	PU58844-2	CAP HOUSING

#A REF NO. PART NO. PART NAME, DESCRIPTION

 * 6.2.22 PB COMB BOARD ASSEMBLY 29 *

PWBA PGE20229A-01 PB COMB BOARD ASSEMBLY

IC1 CXL1004P IC
 IC2 CXL1004P IC

Q1 2SC2778C TRANSISTOR
 Q2 2SC2778C TRANSISTOR
 Q3 2SC2778C TRANSISTOR
 Q4 2SC2778C TRANSISTOR
 Q5 2SC2778C TRANSISTOR
 Q6 2SC2778C TRANSISTOR
 Q7 2SC2778C TRANSISTOR
 Q8 2SC2778C TRANSISTOR
 Q9 2SC2778C TRANSISTOR
 Q10 2SC2778C TRANSISTOR

Q11 2SC2778C TRANSISTOR
 Q12 2SC2778C TRANSISTOR
 Q13 2SC2778C TRANSISTOR

D1 1SS99 DIODE

R1 QRSA08J-105YN RESISTOR
 R2 QVZ3531-102 V RESISTOR , CCD BIAS
 R3 QRSA08J-223YN RESISTOR
 R4 QRSA08J-333YN RESISTOR
 R5 QRSA08J-0R0Y RESISTOR
 R6 QRSA08J-272YN RESISTOR
 R7 QRSA08J-101YN RESISTOR
 R8 QRSA08J-122YN RESISTOR
 R9 QRSA08J-105YN RESISTOR
 R10 QVZ3531-102 V RESISTOR , CCD BIAS

R11 QRSA08J-223YN RESISTOR
 R12 QRSA08J-333YN RESISTOR
 R13 QRSA08J-0R0Y RESISTOR
 R14 QRSA08J-272YN RESISTOR
 R15 QRSA08J-102YN RESISTOR
 R16 QRSA08J-221YN RESISTOR
 R17 QRSA08J-561YN RESISTOR
 R18 QVZ3531-102 V RESISTOR , 2H DL LEV
 R19 QRSA08J-273YN RESISTOR
 R20 QRSA08J-103YN RESISTOR

R21 QRSA08J-102YN RESISTOR
 R22 QVZ3531-682 V RESISTOR , 2H DL PHASE
 R24 QRSA08J-102YN RESISTOR
 R25 QRSA08J-152YN RESISTOR
 R26 QRSA08J-333YN RESISTOR
 R27 QRSA08J-333YN RESISTOR
 R28 QRSA08J-333YN RESISTOR
 R29 QRSA08J-333YN RESISTOR
 R30 QRSA08J-101YN RESISTOR

R31 QRSA08J-101YN RESISTOR
 R32 QRSA08J-681YN RESISTOR
 R33 QRSA08J-221YN RESISTOR
 R34 QRSA08J-102YN RESISTOR
 R35 QRSA08J-222YN RESISTOR
 R36 QRSA08J-221YN RESISTOR
 R37 QRSA08J-562YN RESISTOR
 R38 QRSA08J-221YN RESISTOR
 R39 QRSA08J-222YN RESISTOR
 R40 QRSA08J-102YN RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R41 QRSA08J-102YN RESISTOR
 R42 QRSA08J-104YN RESISTOR
 R43 QRSA08J-103YN RESISTOR
 R44 QRSA08J-103YN RESISTOR
 R45 QRSA08J-393YN RESISTOR
 R46 QRSA08J-103YN RESISTOR
 R47 QRSA08J-472YN RESISTOR
 R48 QRSA08J-152YN RESISTOR
 R49 QRSA08J-332YN RESISTOR
 R50 QRSA08J-0R0Y RESISTOR

C1 QCYA1HK-223 CAPACITOR
 C2 QCYA1HK-223 CAPACITOR
 C3 QER41HM-105 E CAPACITOR
 C4 QER41EM-335 E CAPACITOR
 C5 QCSA1HJ-101 CAPACITOR
 C6 QCYA1HK-223 CAPACITOR
 C7 QER41CM-476 E CAPACITOR
 C8 QER41EM-335 E CAPACITOR
 C9 QER41EM-335 E CAPACITOR
 C10 QCYA1HK-223 CAPACITOR

C11 QER41CM-106 E CAPACITOR
 C12 QER41CM-106 E CAPACITOR
 C13 QCYA1HK-223 CAPACITOR
 C14 QCSA1HJ-120 CAPACITOR
 C15 QER41HM-105 E CAPACITOR
 C16 QER41EM-335 E CAPACITOR
 C17 QCSA1HJ-101 CAPACITOR
 C18 QCYA1HK-223 CAPACITOR
 C19 QER41CM-476 E CAPACITOR
 C20 QER41EM-335 E CAPACITOR

C21 QER41EM-335 E CAPACITOR
 C22 QCYA1HK-223 CAPACITOR
 C23 QER41CM-106 E CAPACITOR
 C24 QER41CM-106 E CAPACITOR
 C25 QCYA1HK-223 CAPACITOR
 C26 QCSA1HJ-220 CAPACITOR
 C27 QCSA1HJ-151 CAPACITOR
 C28 QER41CM-476 E CAPACITOR
 C29 QCSA1HJ-330 CAPACITOR
 C30 QCYA1HK-223 CAPACITOR

C31 QER41CM-476 E CAPACITOR
 C32 QER41CM-106 E CAPACITOR
 C33 QER41CM-106 E CAPACITOR
 C34 QCSA1HJ-150 CAPACITOR
 C35 QCSA1HJ-101 CAPACITOR
 C36 QER41CM-476 E CAPACITOR
 C37 QCYA1HK-822 CAPACITOR
 C38 QER41CM-476 E CAPACITOR
 C39 QCYA1HK-223 CAPACITOR
 C40 QER41CM-476 E CAPACITOR

C41 QCSA1HJ-221 CAPACITOR

L1 PG200638-101 COIL
 L2 PG200638-101 COIL
 L3 PU53618-4R7J PEAKING COIL
 L4 PG200638-101 COIL
 L5 PG200638-101 COIL
 L6 PU53223-100J PEAKING COIL
 L7 PG200638-101 COIL
 L8 PG200638-101 COIL

LPF1-1 PGZ01036 LOW PASS FILTER
 LPF1-2 PGZ01037 LOW PASS FILTER

K1 PGZ00627Z CHIP FERRITE BEADS
 K2 PGZ00627Z CHIP FERRITE BEADS
 K3 PGZ00627Z CHIP FERRITE BEADS
 K4 PGZ00627Z CHIP FERRITE BEADS
 K5 PGZ00627Z CHIP FERRITE BEADS

#A REF NO. PART NO. PART NAME, DESCRIPTION

K6	PG200627Z	CHIP FERRITE BEADS
K7	PG200627Z	CHIP FERRITE BEADS
K8	PG200627Z	CHIP FERRITE BEADS
K9	PG200627Z	CHIP FERRITE BEADS
K10	PG200627Z	CHIP FERRITE BEADS

K11	PG200627Z	CHIP FERRITE BEADS
-----	-----------	--------------------

J1	QWE251-06A2A2	WIRE
----	---------------	------

SLD1	PGD40946	SHIELD CASE
SLD2	PGD40947	SHIELD CASE

TP1	PGZ01015	CHIP TEST POINT, X3
-----	----------	---------------------

TPGND	PU56008	TEST POINT
-------	---------	------------

CN1	PGZ00724-10	CONNECTOR
CN2	PGZ00724-11	CONNECTOR
CN3	PU58844-109	CAP HOUSING

* 6.2.23 COLOR SUB BOARD ASSY 32 *

PWBA	PGE20231A-01	COLOR SUB BOARD ASSEMBLY
------	--------------	--------------------------

IC1	MN4538BS	IC
IC2	MN4528BS	IC
IC3	AN6308S	IC
IC4	SN76515P	IC
IC5	M51204TL	IC

Q1	2SC2778C	TRANSISTOR
Q2	2SC2778C	TRANSISTOR
Q3	2SC2778C	TRANSISTOR
Q4	2SC2778C	TRANSISTOR
Q5	2SC2778C	TRANSISTOR
Q6	2SC2778C	TRANSISTOR

D1	DA204K	DIODE
----	--------	-------

R1	QVZ3531-472	V RESISTOR
R2	QRSA08J-103YN	RESISTOR
R3	QRSA08J-103YN	RESISTOR
R4	QRSA08J-103YN	RESISTOR
R5	QVZ3531-472	V RESISTOR
R6	QRSA08J-103YN	RESISTOR
R7	QVZ3531-223	V RESISTOR
R8	QRSA08J-562YN	RESISTOR
R9	QRSA08J-103YN	RESISTOR
R10	QVZ3531-223	V RESISTOR

R11	QRSA08J-102YN	RESISTOR
R12	QRSA08J-103YN	RESISTOR
R13	QRSA08J-103YN	RESISTOR
R14	QRSA08J-181YN	RESISTOR
R15	QRSA08J-102YN	RESISTOR
R16	QRSA08J-223YN	RESISTOR
R17	QRSA08J-153YN	RESISTOR
R18	QRSA08J-102YN	RESISTOR
R19	QRSA08J-102YN	RESISTOR
R20	QRSA08J-102YN	RESISTOR

R21	QRSA08J-102YN	RESISTOR
R22	QRSA08J-332YN	RESISTOR
R23	QRSA08J-392YN	RESISTOR
R24	QRSA08J-392YN	RESISTOR
R25	QRSA08J-183YN	RESISTOR
R26	QRSA08J-103YN	RESISTOR
R27	QRSA08J-272YN	RESISTOR
R28	QRSA08J-821YN	RESISTOR

#A REF NO. PART NO. PART NAME, DESCRIPTION

R29	QRSA08J-271YN	RESISTOR
R30	QRSA08J-152YN	RESISTOR

R31	QRSA08J-104YN	RESISTOR
R32	QRSA08J-103YN	RESISTOR
R33	QRSA08J-182YN	RESISTOR
R34	QRSA08J-392YN	RESISTOR
R35	QRSA08J-562YN	RESISTOR
R36	QRSA08J-182YN	RESISTOR

C1	QFN41HJ-102	M CAPACITOR
C2	QFP42AF-272	PP CAPACITOR
C3	QFN41HJ-102	M CAPACITOR
C4	QFP42AF-272	PP CAPACITOR
C5	QER40JM-476	E CAPACITOR
C6	QCYA1HK-223	CAPACITOR
C7	QCTA1CH-331	CAPACITOR
C8	QCTA1CH-331	CAPACITOR
C9	QCYA1HK-223	CAPACITOR
C10	QCF41EZ-104	CAPACITOR

C12	QCYA1HK-223	CAPACITOR
C13	QCYA1HK-223	CAPACITOR
C14	QCSA1HJ-101	CAPACITOR
C15	QER40JM-476	E CAPACITOR
C16	QCYA1HK-223	CAPACITOR
C17	QCYA1HK-223	CAPACITOR
C18	QCYA1HK-223	CAPACITOR
C19	QCYA1HK-223	CAPACITOR
C20	QCYA1HK-223	CAPACITOR

C21	QCYA1HK-223	CAPACITOR
C22	QER41CM-106	E CAPACITOR
C23	QCYA1HK-223	CAPACITOR

L1	PUS3223-221J	COIL
L2	PUS3223-471J	COIL
L3	PUS3223-221J	COIL

CN1	QMV5001-008	HOUSING
CN2	QMV5001-007	HOUSING

* 6.2.24 A/C HEAD BOARD 35 *

PWB	PGE40009	A/C HEAD BOARD
-----	----------	----------------

* 6.2.25 VITC JUNC BOARD ASSY 36 *

PWBA	PRK40003A-01	VITC JUNC BOARD ASSY
------	--------------	----------------------

IC1	TC4S81F	IC
IC2	TC4S69F	IC

D1	1SS133	DIODE
D2	1SS133	DIODE
D3	1SS133	DIODE
D4	1SS133	DIODE
D5	1SS133	DIODE
D6	1SS133	DIODE

R1	QRSA08J-102YN	RESISTOR
R2	QRSA08J-102YN	RESISTOR

36 37 38

#A	REF NO.	PART NO.	PART NAME, DESCRIPTION
R3		QRSA08J-104YN	RESISTOR
R4		QRSA08J-102YN	RESISTOR
C1		QER40JM-476	E CAPACITOR
C2		QCYA1HK-223	CAPACITOR
L1		PGZ00638-101	COIL
VA1		PU49624-2	VARISTOR
CN1		PU58844-108	CAP HOUSING
CN2		PU58844-110	CAP HOUSING
CN3		PU58844-102	CAP HOUSING

* 6.2.26 ADVANCE REC BOARD ASSY 37 *			

PWBA	PRK30011B-01	ADVANCE REC BOARD ASSY	
IC1	VC2505-2	IC	
R2	QRD167J-0R0	RESISTOR	
R5	QRD167J-681	RESISTOR	
R6	QRD167J-331	RESISTOR	
R7	QRD167J-102	RESISTOR	
R8	QVZ3531-101	V RESISTOR	
R9	QVZ3531-222	V RESISTOR	
R10	QVZ3531-332	V RESISTOR	
R11	QRD167J-680	RESISTOR	
R12	QRD167J-0R0	RESISTOR	
B1	PU59499-2	BUS WIRE	
B2	PU59499-2	BUS WIRE	
B3	PU59499-2	BUS WIRE	
B4	PU59499-2	BUS WIRE	
B5	PU59499-3	BUS WIRE	
B6	PU59499-3	BUS WIRE	
B7	PU59499-2	BUS WIRE	
B8	PU59499-3	BUS WIRE	
C1	QCF11HP-223	CAPACITOR	
C2	QCF11HP-223	CAPACITOR	
C5	QEE40JM-476	E CAPACITOR	
C6	QER41CM-106	E CAPACITOR	
C7	QCS11HJ-680	CAPACITOR	
C8	QER41CM-476	E CAPACITOR	
C9	QCF11HP-223	CAPACITOR	
C10	QCS11HJ-560	CAPACITOR	
C11	QER40JM-476	E CAPACITOR	
C12	QCS11HJ-151	CAPACITOR	
C13	QER41AM-476	E CAPACITOR	
C14	QCS11HJ-680	CAPACITOR	
C15	QCS11HJ-100	CAPACITOR	
C16	QCS11HJ-560	CAPACITOR	
C17	QER41CM-476	E CAPACITOR	
L1	PU53223-221J	COIL	
L2	PU53223-100J	COIL	
L3	PU53223-101J	COIL	
L4	PU53223-101J	COIL	
L6	PU48530-270J	COIL	
TP GND	PU56008	TEST-PIN	
TP1	PU56008	TEST-PIN	
CN1	PU58844-111	CAP HOUSING	

#A	REF NO.	PART NO.	PART NAME, DESCRIPTION

* 6.2.27 VIDEO(2) BOARD ASSY 38 *			

PWBA	PRK40007A-01	VIDEO(2) BOARD ASSY	
IC1	TC4S81F	IC	
IC2	AN6308S	IC	
IC3	AN6308S	IC	
Q1	2SA1022C	TRANSISTOR	
Q2	2SC2778C	TRANSISTOR	
Q3	2SK621	FE TRANSISTOR	
Q4	2SK621	FE TRANSISTOR	
Q5	2SC2778C	TRANSISTOR	
Q6	2SC2778C	TRANSISTOR	
Q7	2SA1022C	TRANSISTOR	
Q8	2SD601A(QR)	TRANSISTOR	
Q9	2SA1022C	TRANSISTOR	
Q10	2SC2778C	TRANSISTOR	
Q11	2SC2778C	TRANSISTOR	
Q12	2SC2778C	TRANSISTOR	
Q13	2SC2778C	TRANSISTOR	
Q14	2SC2778C	TRANSISTOR	
Q15	2SC2778C	TRANSISTOR	
Q16	2SA1022C	TRANSISTOR	
Q17	2SA1022C	TRANSISTOR	
R1	QRSA08J-222YN	RESISTOR	
R2	QRSA08J-102YN	RESISTOR	
R3	QRSA08J-222YN	RESISTOR	
R4	QRSA08J-102YN	RESISTOR	
R6	QRSA08J-272YN	RESISTOR	
R7	QRSA08J-272YN	RESISTOR	
R8	QRSA08J-222YN	RESISTOR	
R9	QRSA08J-181YN	RESISTOR	
R10	QRSA08J-273YN	RESISTOR	
R11	QRSA08J-222YN	RESISTOR	
R12	QRSA08J-102YN	RESISTOR	
R13	QRSA08J-471YN	RESISTOR	
R14	QRSA08J-223YN	RESISTOR	
R15	QRSA08J-103YN	RESISTOR	
R16	QRSA08J-102YN	RESISTOR	
R17	QRSA08J-101YN	RESISTOR	
R18	QRSA08J-222YN	RESISTOR	
R19	QRSA08J-561YN	RESISTOR	
R20	QRSA08J-821YN	RESISTOR	
R21	QRSA08J-102YN	RESISTOR	
R22	QRSA08J-103YN	RESISTOR	
R23	QRSA08J-223YN	RESISTOR	
R24	QRSA08J-152YN	RESISTOR	
R25	QRSA08J-471YN	RESISTOR	
R26	QRSA08J-102YN	RESISTOR	
R27	QRSA08J-152YN	RESISTOR	
R28	QRSA08J-103YN	RESISTOR	
R29	QRSA08J-223YN	RESISTOR	
R30	QRSA08J-222YN	RESISTOR	
R32	QRSA08J-472YN	RESISTOR	
R33	QRSA08J-103YN	RESISTOR	
R34	QRSA08J-103YN	RESISTOR	
R35	QRSA08J-181YN	RESISTOR	
R36	QRSA08J-102YN	RESISTOR	
R37	QRSA08J-103YN	RESISTOR	
R38	QRSA08J-181YN	RESISTOR	
R39	QRSA08J-102YN	RESISTOR	

*△ REF NO. PART NO. PART NAME, DESCRIPTION

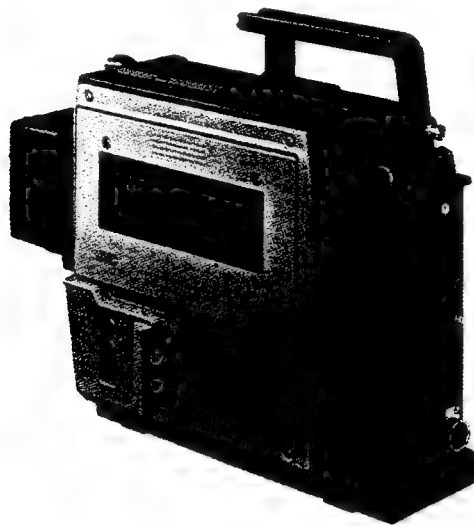
R40	QRSA08J-102YN	RESISTOR
R41	QRSA08J-103YN	RESISTOR
R42	QRSA08J-223YN	RESISTOR
R43	QRSA08J-102YN	RESISTOR
R44	QRSA08J-103YN	RESISTOR
R45	QRSA08J-223YN	RESISTOR
R46	QVZ3531-681	V RESISTOR
R47	QVZ3531-681	V RESISTOR
R48	QRSA08J-103YN	RESISTOR
R49	QRSA08J-223YN	RESISTOR
R50	QRSA08J-222YN	RESISTOR
R51	QRSA08J-222YN	RESISTOR
R52	QRSA08J-102YN	RESISTOR
R53	QRSA08J-0R0Y	RESISTOR
C1	QCSA1HJ-390	CAPACITOR
C2	QCSA1HJ-121	CAPACITOR
C3	QCFA1EZ-104	CAPACITOR
C4	QCYA1HK-223	CAPACITOR
C5	QER40JM-476	E CAPACITOR
C6	QER40GM-476	ECAP
C7	QCSA1HJ-270	CAPACITOR
C8	QER40JM-476	E CAPACITOR
C9	QCYA1HK-223	CAPACITOR
C10	QER40JM-476	E CAPACITOR
C11	QCSA1HJ-220	CAPACITOR
C12	QEP40JM-476	NP E CAPACITOR
C13	QEP40JM-476	NP E CAPACITOR
C14	QCYA1HK-223	CAPACITOR
C15	QCYA1HK-223	CAPACITOR
C16	QCYA1HK-223	CAPACITOR
C17	QCYA1HK-223	CAPACITOR
C18	QCYA1HK-223	CAPACITOR
C19	QCYA1HK-223	CAPACITOR
C20	QCYA1HK-223	CAPACITOR
C21	QER40JM-476	E CAPACITOR
C22	QCYA1HK-223	CAPACITOR
C23	QCYA1HK-223	CAPACITOR
C24	QCYA1HK-223	CAPACITOR
C25	QCYA1HK-223	CAPACITOR
C26	QCYA1HK-223	CAPACITOR
C27	QER40JM-476	E CAPACITOR
C28	QCYA1HK-223	CAPACITOR
L1	PU53223-471J	COIL
L2	PGZ00638-101	COIL
L3	PGZ00638-101	COIL
L4	PGZ00638-101	COIL
L5	PGZ00638-101	COIL
CN1	PGZ01171-16	CONNECTOR
CN2	PGZ01171-16	CONNECTOR
CN3	PU58844-7	CAP HOUSING
CN4	PU58844-10	CAP HOUSING

 * 6.2.28 EARPHONE BOARD ASSY 39 *

PW8A	PGE40275A	EAR PHONE BOARD ASSY
J1	PU47500	MINI JACK, (JACK1)
CN1	PU58844-102	CAP HOUSING

CAMERA ADAPTER

SA-S41E



SPECIFICATIONS

GENERAL

Video signal system	: PAL-type colour signal/PAL-type Y/C signal
Power requirement	: DC 12 V
Power consumption	: 3 watts
Dimensions	: 352(W) x 248.5(H) x 137(D) mm (when attached to the recorder)
Weight	: 650 g
Operating temperature	: 0°C to 40°C, Non-water proof
Storage temperature	: -20°C to 50°C

VIDEO

Video input	
Line	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Y/C	: Y: 1.0 Vp-p, 75 ohms, unbalanced C: 0.3 Vp-p (Burst), 75 ohms, unbalanced

AUDIO

Audio input	
Line	: -6 dBs, 10 k-ohms, unbalanced
Camera microphone	: -60 dB, 3 k-ohms, balanced (14-pin: L) -20 dB, 10 k-ohms, unbalanced (14-pin: H, 10-pin)

ACCESSORIES

	: Shoulder strap x 1
	Battery for Remote control unit x 2
	Remote control unit x 1
	Base x 1

INSTRUCTIONS

JVC

SA-S41E

CAMERA ADAPTER
ADAPTATEUR DE CAMERA
KAMERA-ADAPTER



NOTE:

The rating plate (serial number plate) is on the rear of the unit.

CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

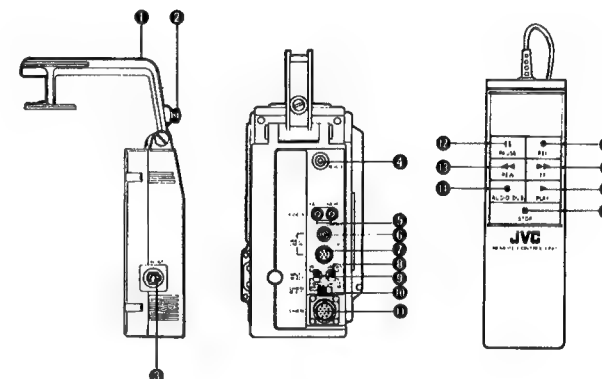
CONTENTS

Features	1
Controls, indicators and connectors	2
Attaching to the BR-S411E/BR-S410EX	4
Attaching the shoulder strap	4
Connections	5
Recording	6
Specifications	7

FEATURES

- Allows the BR-S411E or BR-S410EX to be used as a separate portable system in combination with a camera.
- The 14-pin camera connector supplies a maximum of 2 amperes of DC 12 V power to a connected camera.
- The video (composite and Y/C443) and audio input terminals permit the BR-S411E or BR-S410EX to record external signals from another video recorder.
- A remote control terminal is provided so that the recorder can be controlled via the provided remote control unit.

CONTROLS, INDICATORS AND CONNECTORS



1 Carrying handle

2 Hook

3 AV OUT connector

Using the optional RF unit, connect this terminal to the antenna terminal of a TV receiver for playback or monitoring.

4 REMOTE connector

Connect the provided remote control unit.

5 AUDIO IN AUD-1 (L)/AUD-2 (R)

connectors
Audio input connectors for normal and Hi-Fi audio.

6 VIDEO LINE IN (COMPOSITE) connector

Input connector for composite video signal.

7 VIDEO LINE IN (Y/C 443)

A separated Y/C input connector for an input signal which conforms to the Y/C 443 system. Use an appropriate Y/C cable when connecting to this terminal.

8 INPUT SELECT (COMPOSITE/Y/C 443) switch

Selects the input signal (composite or Y/C 443) coming from the VIDEO LINE IN or CAMERA connector.

9 INPUT SELECT (LINE/CAMERA) switch

Selects the input signal (camera or line) to be recorded.

● CAMERA SELECT switch

Selects the type of camera to be connected.

14P H: Set to this position when a camera is connected using a 14-pin camera cable with high level microphone output (~20 dB).

14P L: Set to this position when a camera is connected using a 14-pin camera cable with low level microphone output (~60 dB).

10P: Set to this position when a 10-pin camera is used.

● CAMERA connector

Connect a video camera using a 14-pin camera cable. (DC 12 V outlet, max. 2.5A)

● PAUSE/STILL button

Press to stop the tape temporarily during recording or playback. The PAUSE/STILL LED indicator will light. When this button is pressed during recording, the tape is rewound for 1.3 seconds and stops in the Record-Pause mode (when AEF mode is on). When the PLAY button is pressed, or triggered by the camera's start/stop button, the tape starts running and recording at the position where the previous recording stopped. When this button is pressed during playback, a still picture is obtained. To resume normal playback, press the PLAY button.

● REW button

When the button is pressed in the Stop mode, the tape will be rewound with the E-E picture appearing on the monitor screen. The REW LED indicator will light.

Pressing this button in the Play or Still mode enables high-speed playback at about 9 times normal in the reverse direction.

● A DUB button

To start audio dubbing, press the PLAY button while holding the A DUB button depressed. The A DUB and PLAY LED indicators will light and the sound on the normal audio-2 track will be replaced by new material.

● REC button

To start recording (video and audio), press this button together with the PLAY button. The recording mode will be engaged with the REC and PLAY LED indicators lit. To stop recording, press the STOP button.

● FF button

When the button is pressed in the Stop mode, the tape will be fast-forwarded with the E-E picture appearing on the monitor screen. The FF LED indicator will light.

Pressing this button in the Play or Still mode enables high-speed playback at about 9 times normal in the forward direction.

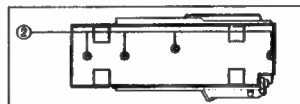
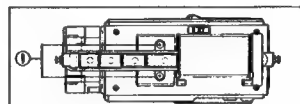
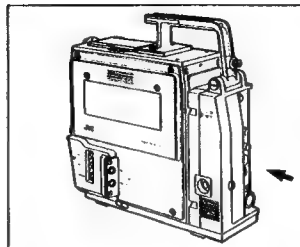
● PLAY button

Press to start playback. Press together with the REC button for recording, and with the A DUB button for audio dubbing.

● STOP button

Press to stop the tape. When this button is pressed while the tape is running, the LED indicator lights and the tape is completely withdrawn into the cassette. This state is referred to as the Stop mode.

ATTACHING TO THE BR-S411E/BR-S410EX



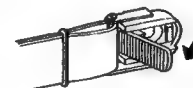
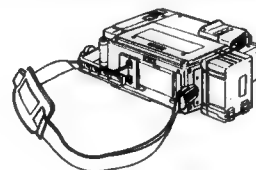
To combine a camera with the BR-S410EX or BR-S411E to form a portable video system, the SA-S41E must be attached. ●Make sure that the Power switch is OFF.

1. Slide onto the BR-S410EX or BR-S411E in the direction of the arrow, holding its lower portion.

2. Tighten 2 large screws (8 mm dia.), ①, retaining the carrying handle of the SA-S41E to the top of the BR-S410EX or BR-S411E with a Phillips screwdriver.

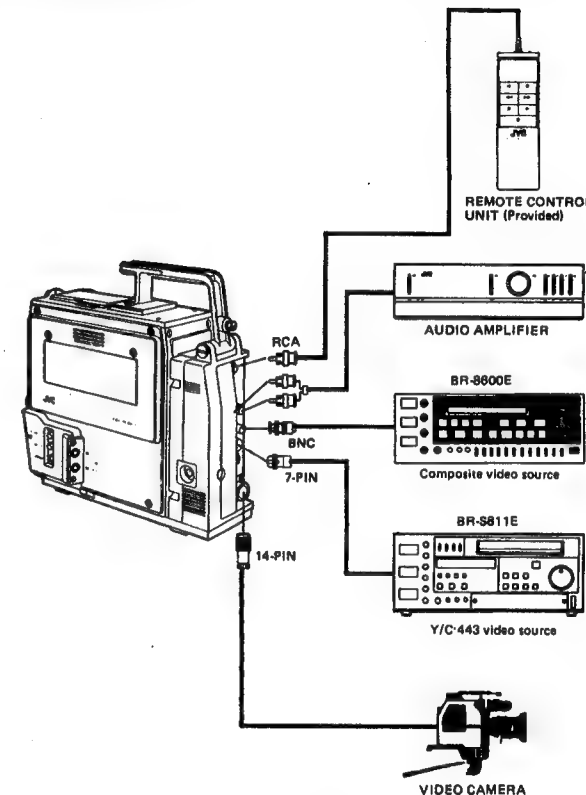
3. Tighten 4 screws ② on the base of the SA-S41E to the bottom of the BR-S410EX or BR-S411E with a coin or flathead screwdriver.

ATTACHING THE SHOULDER STRAP



For carrying around on the shoulder, attach the provided shoulder strap. Open the latch on the end of the strap as illustrated and engage on to the hook ②, then close the latch.

CONNECTIONS



RECORDING

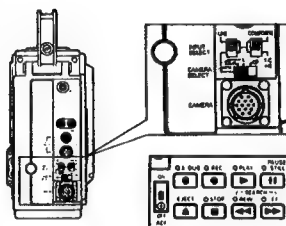
RECORDING VIA CAMERA CONNECTOR

●Connect the camera with its power save switch in the Standby position.

1. Set the INPUT SELECT LINE/CAMERA switch to CAMERA. Set the CAMERA SELECT switch as required depending on the camera cable used. Then set the INPUT SELECT COMPOSITE/Y/C433 switch as required depending on the type of camera output signal: to COMPOSITE when an ordinary video camera is used, and to Y/C443 when a S-VHS compatible camera (one with separate Y/C output signals) is used.
2. Press the REC and PLAY buttons of the BR-S410EX or BR-S411E simultaneously. The REC and PAUSE LED indicators will light.
3. To start recording, press the camera's trigger.

Notes:

- Set the CAMERA SELECT switch according to the output level of the camera's microphone (High or Low). The sound from the camera's microphone is recorded on normal audio-1 or Hi-Fi L channel.
- To record on normal audio-2 or Hi-Fi R channel, use the AUDIO IN AUD-2 (R) or MIC AUD-2 (R) connector. (BR-S410EX)

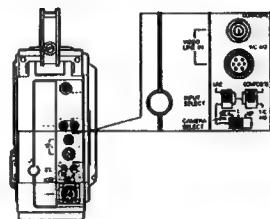


RECORDING VIA VIDEO LINE IN CONNECTOR

1. Set the INPUT SELECT LINE/CAMERA switch to LINE. Set the INPUT SELECT COMPOSITE/Y/C443 switch as required depending on the VIDEO LINE IN connector used.
2. Press the REC and PAUSE/STILL buttons simultaneously to enter the Record-Pause mode.
3. To start recording, press the PLAY button. To stop recording temporarily, press the PAUSE/STILL button. To end recording, press the STOP button.

Note:

●When using a camera, if the INPUT SELECT switch is set to LINE, recording cannot be started with the recorder's controls. (To make this possible, set the camera's power switch to OFF.)



SPECIFICATIONS

GENERAL

Video signal system	: PAL-type colour signal/PAL-type Y/C signal
Power requirement	: DC 12 V
Power consumption	: 3 watts
Dimensions	: 352(W) x 248.5(H) x 137(D) mm (when attached to the recorder)
Weight	: 650 g
Operating temperature	: 0°C to 40°C, Non-water proof
Storage temperature	: -20°C to 50°C

VIDEO

Video input	
Line	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Y/C	: Y: 1.0 Vp-p, 75 ohms, unbalanced C: 0.3 Vp-p (Burst), 75 ohms, unbalanced

AUDIO

Audio input	
Line	: -6 dBs, 10 k-ohms, unbalanced
Camera microphone	: -60 dB, 3 k-ohms, balanced (14-pin: L) -20 dB, 10 k-ohms, unbalanced (14-pin: H, 10-pin)

ACCESSORIES

- Shoulder strap x 1
- Battery for Remote control unit x 2
- Remote control unit x 1
- Base x 1

SECTION 1 DISASSEMBLY

1.1 REMOVING CASE

- 1) Remove four screws (A) and lift the case slightly to take it off.
- 2) After disconnecting connectors from the board, it can be taken apart.

1.2 REMOVING BOARDS

1. ADAPTER (2) BOARD

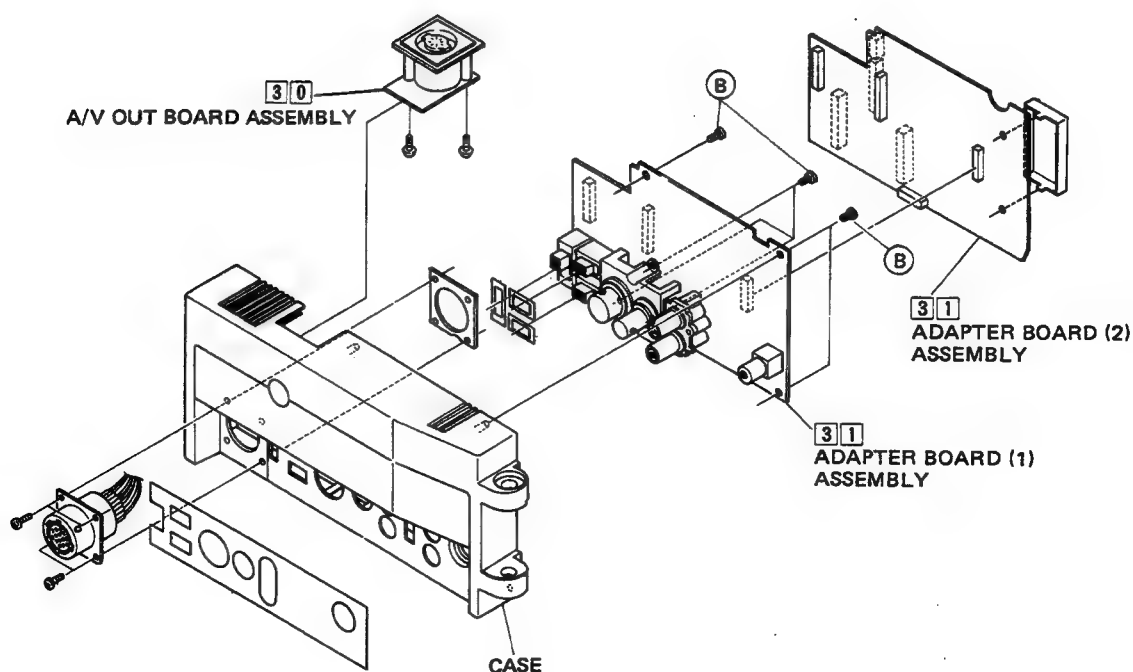
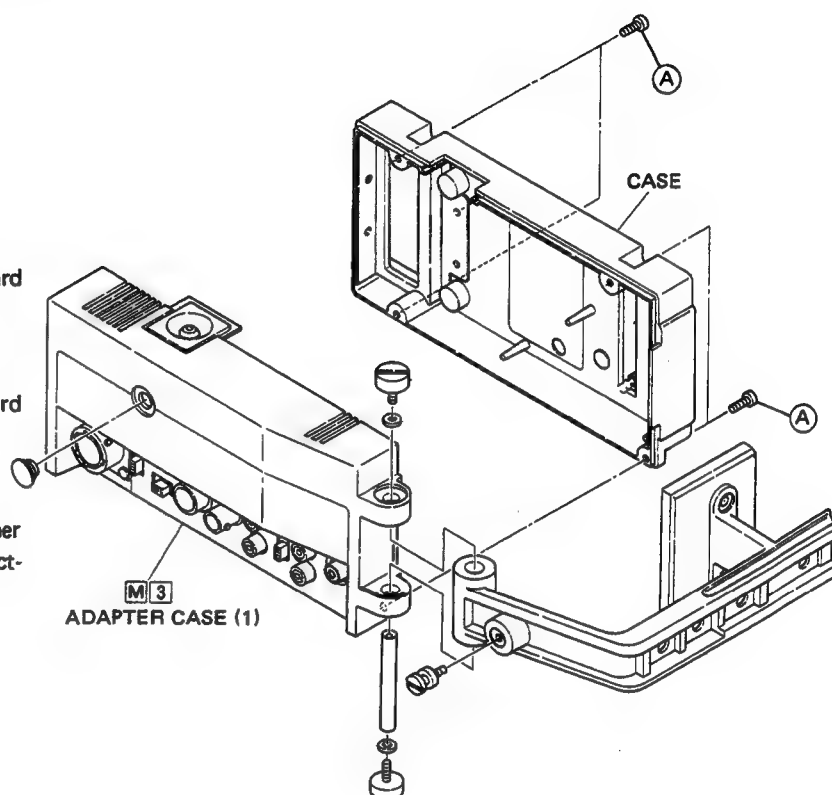
- 1) Take off the case.
(See Section 1.1)
- 2) Disconnect connectors and lift the board slightly, it can be taken off.

2. ADAPTER (1) BOARD

- 1) Take off the ADAPTER (2) BOARD.
- 2) Remove screws (B) and lift the board slightly to take it off.

3. A/V OUT BOARD

- 1) Take off the case (See Section 1.1)
- 2) Slightly pull up the board. (or together with cover) from the case and disconnecting connectors.



SECTION 2 ELECTRICAL ADJUSTMENTS

2.1 PRELIMINARY CHECKS AND CAUTIONS

1. Adjustments are required after replacing major parts of the electrical circuits. In all cases, first confirm that adjustment of a specific part is actually needed before disturbing its setting.
2. All adjustments are performed in the circuit boards.

2.2 REQUIRED TEST INSTRUMENTS AND FIXTURES

1. The following test instruments and fixtures (see Fig. 2-1) are required for electrical adjustments. Attempts to adjust without them would entail inordinate time and would not yield the required precision and performance.
2. In addition to the special fixtures, check that the following test equipment is available.
 - Frequency counter (better than 10 MHz, 100 mV sensitivity, high impedance input)
 - Video signal generator
 - Waveform monitor
 - Digital voltmeter (capable of reading down to 1 mV DC)
 - Sweep signal generator (100 kHz to 10 MHz)
 - Oscilloscope (dual-trace, better than 50 MHz)
 - Audio tester

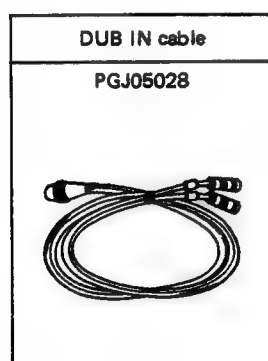


Fig. 2-1 Required special test equipment

3. Recommended additional fixtures

1) Shorting lead

This can be constructed easily as shown in the figure. It is used for shorting test pins.

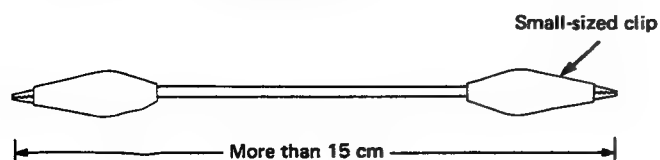


Fig. 2-2

2) Patch cord (PGJ05019)

To be used between the ADAPTER-1 PWB and the ADAPTER-2 PWB for measuring voltage and relating repair. (Refer to Fig. 2-3)

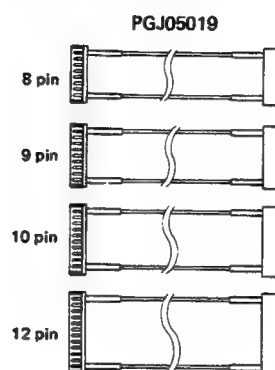


Fig. 2-3

3) Patch cord (PGJ05020)

To be used between the COLOR PWB and the COLOR SUB PWB or the PB COM PWB, and used between the AUDIO PWB and the FMA PWB for measuring voltage and relating repair. (Refer to Fig. 2-4)

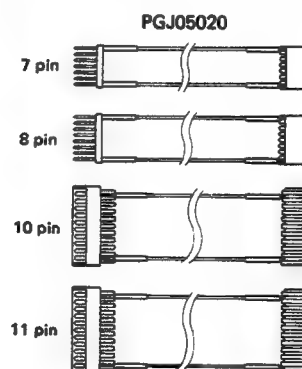
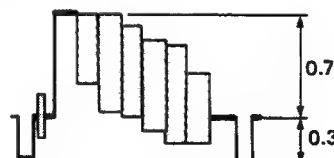


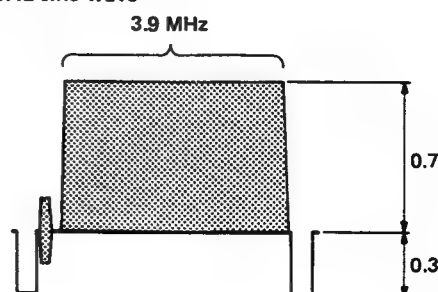
Fig. 2-4

4. Required video system test signals

1) EBU 75% colour bars



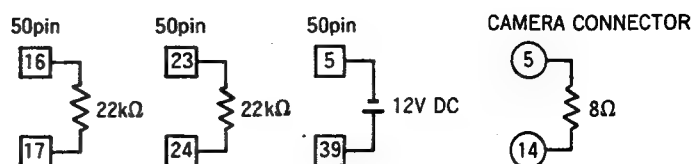
2) 3.9 MHz sine wave



2.3 ADAPTER CIRCUIT

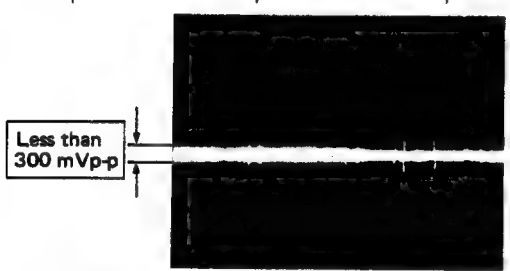

2.3.1 Audio block

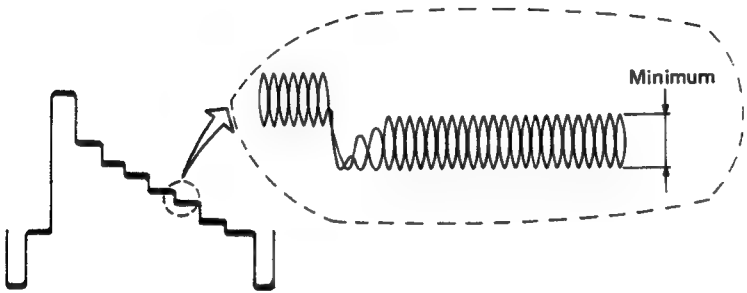
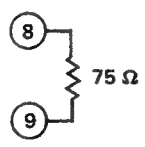
This is normally checked while installed in the BR-S411E.
To check it individually, initialize as follows.



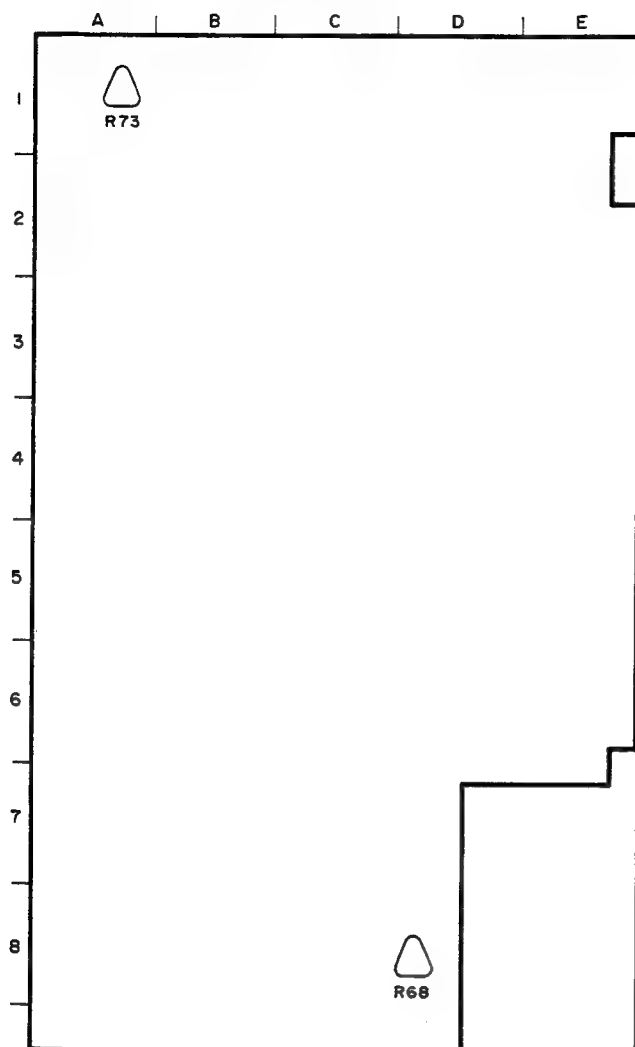
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	Line input system output level	50-pin connector's Pin 17 (Pin 15: GND) Pin 24 (Pin 23: GND)	—	1 kHz	E-E	1) Set switches as follows. INPUT SELECT : LINE 2) Supply 1 kHz -6.0 dBs signals to AUDIO IN: AUDIO-1 and AUDIO-2. 3) Confirm -20.0 ± 1.0 dBs outputs at pins 17 and 24 of the 50-pin connector.
2	Camera input system output level	50-pin connector's Pin 17 (Pin 15: GND)	—	1 kHz	E-E	1) Set switches as follows. INPUT SELECT : CAMERA CAMERA SELECT: 14P-H 2) Supply a 1 kHz -20.0 dBs signal to pin 3 of the CAMERA connector. 3) Confirm -20.0 ± 1.0 dBs output at pin 17 of the 50-pin connector. 4) Set CAMERA SELECT switch to 10P. 5) Again confirm -20.0 ± 1.0 dBs output at pin 17 of the 50-pin connector. 6) Set CAMERA SELECT switch to 14P-L. 7) Level is set with measuring instrument connected. 8) Supply 1 kHz -60 dBs signal to CAMERA connector pins 3 and 4. 9) Confirm -20.0 ± 1.0 dBs output at pin 17 of the 50-pin connector.
3	Return audio output	14-pin CAMERA connector's pin 14	—	1 kHz	E-E	1) Set switches as follows. INPUT SELECT : LINE AUDIO OUT : NORM AUDIO MONITOR : MIX 2) Terminate pins 14 and 5 of the 14-pin CAMERA connector at 8 ohms. 3) Supply a 1 kHz -6.0 dBs signal to AUDIO IN (AUDIO-1 and AUDIO-2). 4) Set the NORMAL REC LEVEL controls for -6 dBs at AUDIO OUT. 5) Confirm -24.0 ± 2.0 dBs output at pin 14 of the 14-pin CAMERA connector.
4	A/V output	A/V OUT	—	Color bars 1 kHz	E-E	1) Make the A/V OUT terminal of open-circuit. 2) Confirm that DC voltage of pin 3 of the A/V OUT terminal is 8.0 ± 0.3 V DC. 3) Set the INPUT SELECT SW to 'LINE' and 'COMPOSITE'. 4) Confirm that shape of output waveform at pin 1 of the A/V OUT terminal is normal and its level is 2.0 ± 0.3 Vp-p. 5) Set the NORMAL REC LEVEL controls for -6 dBs at AUDIO OUT. 6) Confirm -3.0 ± 2.0 dB as the output level of pin 6 of the A/V OUT terminal.

2.3.2 Video block

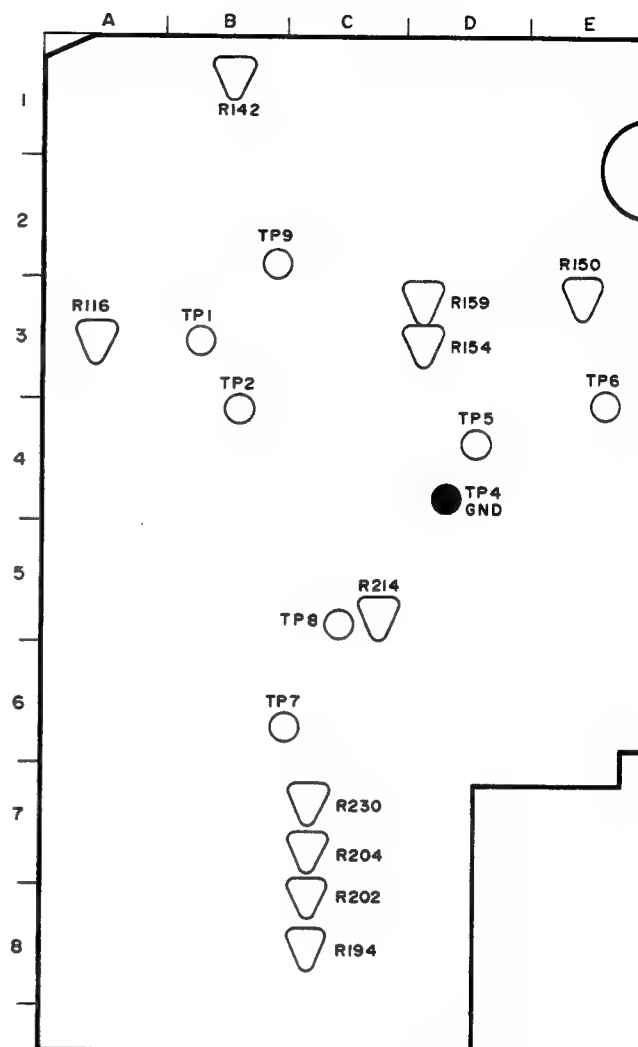
No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
1	AGC output	TP9	R73	Color bars	E-E	1) Set the INPUT SELECT switch to 'LINE' and 'COMPOSITE'. 2) Supply the color bars signal to the VIDEO LINE IN. 3) Adjust R73 to obtain 1 Vp-p as video output at TP9.
2	BPF level	TP1		Color bars	E-E	1) Confirm that BPF level at TP1 is 1.6 ± 0.1 Vp-p.
3	DL2 level	TP1, TP2	R116	Color bars	E-E	1) Adjust R116 to obtain the maximum level as TP2's output, and this level must be confirmed larger than that of TP1. 2) Again adjust R116 to equalize the levels of TP1 and TP2.
4	CCD bias	TP5	R142, R150	Color bars	E-E	1) Adjust R142 and R150 for maximum color signal level at TP5.
5	2H delay level	TP5, TP6, TP4 (GND)	R154, R159	Color bars	E-E	1) Connect CH-1 probe of the dual-trace oscilloscope to TP5 while CH-2 probe to TP6. 2) Mix the signals. Set CH1 and CH2 ranges to be equal. 3) Adjust R154 and R159 for minimum color signal. 4) Confirm that the residual color level is less than 300 mVp-p.
						
6	CYH	TP7, TP4 (GND)	R159, R194	3.9 MHz osc. (Model 410P-JVC : LEADER)	E-E	1) Adjust R159 and R194 to minimize the 3.9 MHz sine wave at TP7.
						

No.	Item	Check Point	Adjustment Parts	Signal	Mode	Description
7	Y out level	TP8	R214	Color bars	E-E	1) Adjust R214 for 1.0 Vp-p Y signal at TP8.
8	Carrier leak	TP8, TP4 (GND)	R202, R204	Color bars	E-E	1) Adjust R202 and R204 to minimize chroma leak at TP8.
						
9	Color output level	C OUT (75Ω terminated)	R230	Color bars	E-E	1) Adjust R230 for 0.30 Vp-p burst level at pin 5 of the Y/C 443 OUT.
10	Return Y level	14-pin CAMERA connectors pin 9 (75Ω terminated)	R68	Color bars	E-E	1) Terminate pins 9 and 8 of the 14-pin CAMERA connector at 75 ohms. 2) Adjust R68 to obtain 1.0 Vp-p as Y level at pin 9 of the 14-pin CAMERA connector.
		<p>CAMERA CONNECTOR</p> 				

— ADAPTER 1 —



— ADAPTER 2 —



— ADAPTER 2 —

TP	1	2	4	5	6	7	8	9
Location	B3	B3	D4	D4	E3	B6	C5	B2

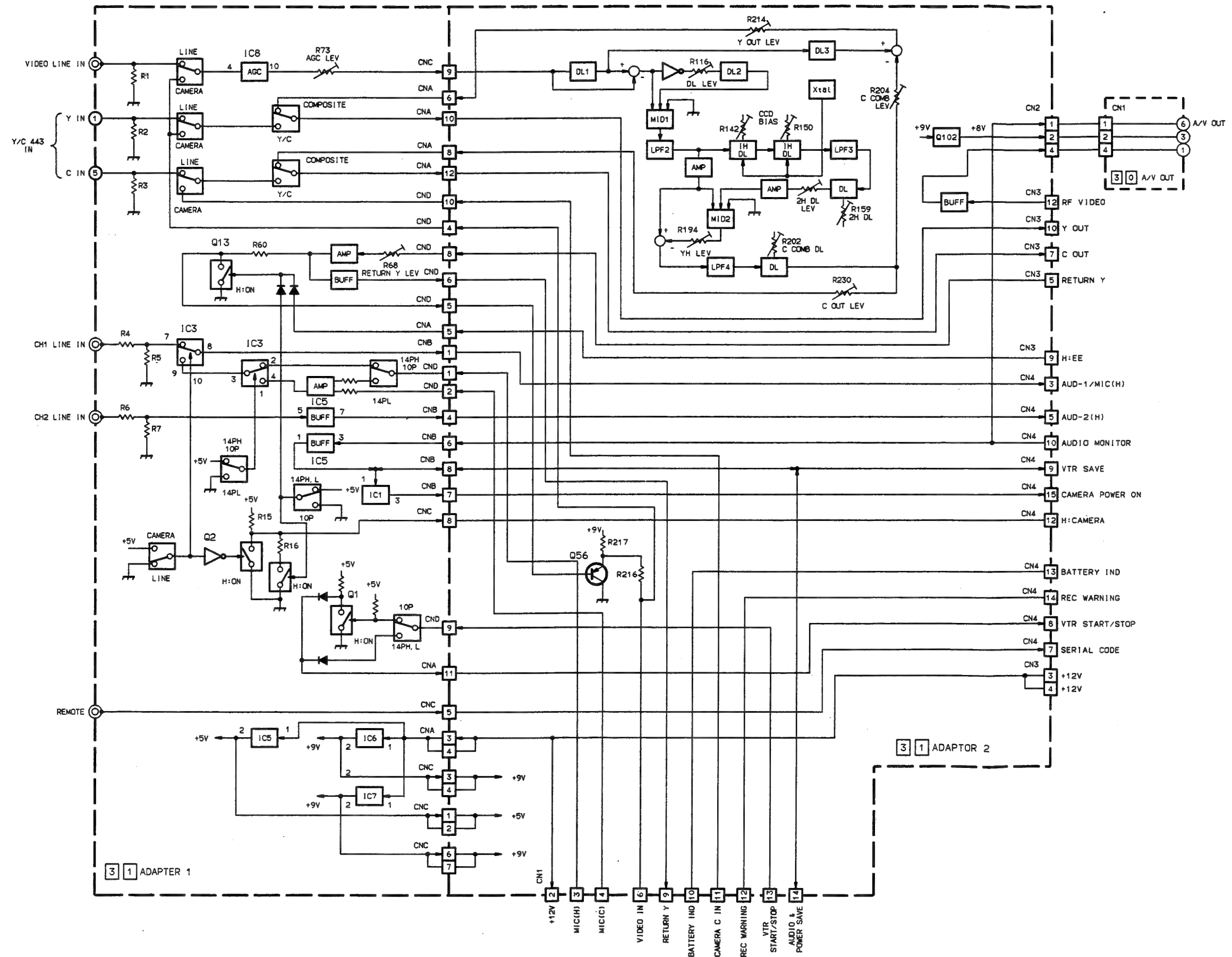
R	116	142	150	154	159	194	202	204	214	230
Location	A3	B1	E2	D3	D3	C8	C7	C7	C5	C7

— ADAPTER 1 —

R	68	73
Location	D8	A1

DIAGRAMS AND CIRCUIT BOARDS

3.1 ADAPTER BLOCK DIAGRAM



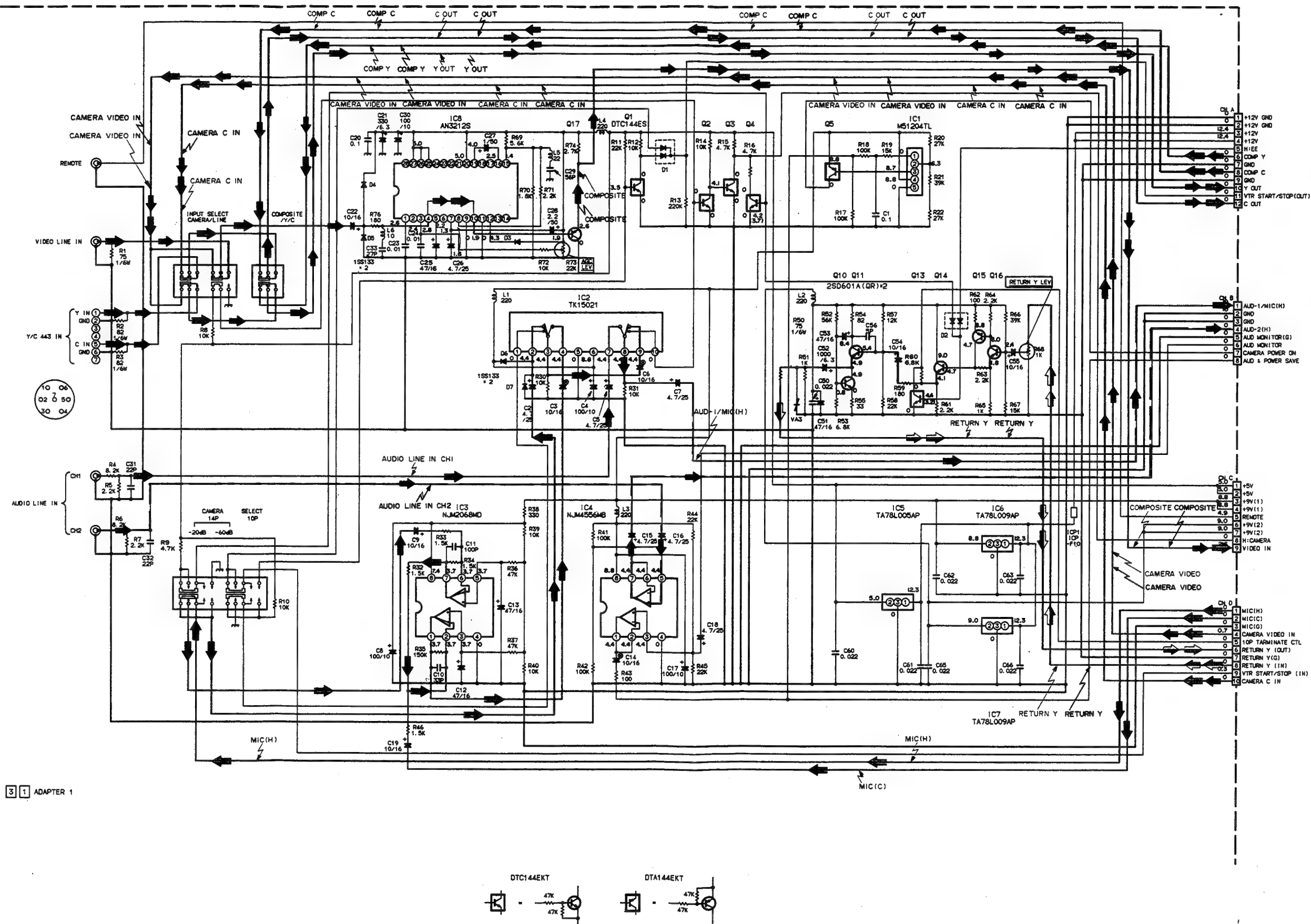
3.2 ADAPTER SCHEMATIC DIAGRAM

- ADAPTER 1 -

- NOTES: 1. All resistance values are in ohms. (1/10 W)
 2. All inductance values are in μ H.
 3. All capacitance values are in μ F.
 4. NPN type transistors are 2SC2778C.
 5. PNP type transistors are 2SA1022C.
 6. All diodes are DAN202K.

7. DC voltages measured with DVM in S-VHS mode.
 Parentheses () indicate play-back voltage then this differs from recording.
 8. Shaded () parts are critical for safety.
 Replace only with specified part numbers.

Following symbols in schematic indicate circuit path according to mode.



3 1 ADAPTER 1

A

B

C

3-2

3-2

E

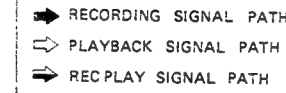
F

G

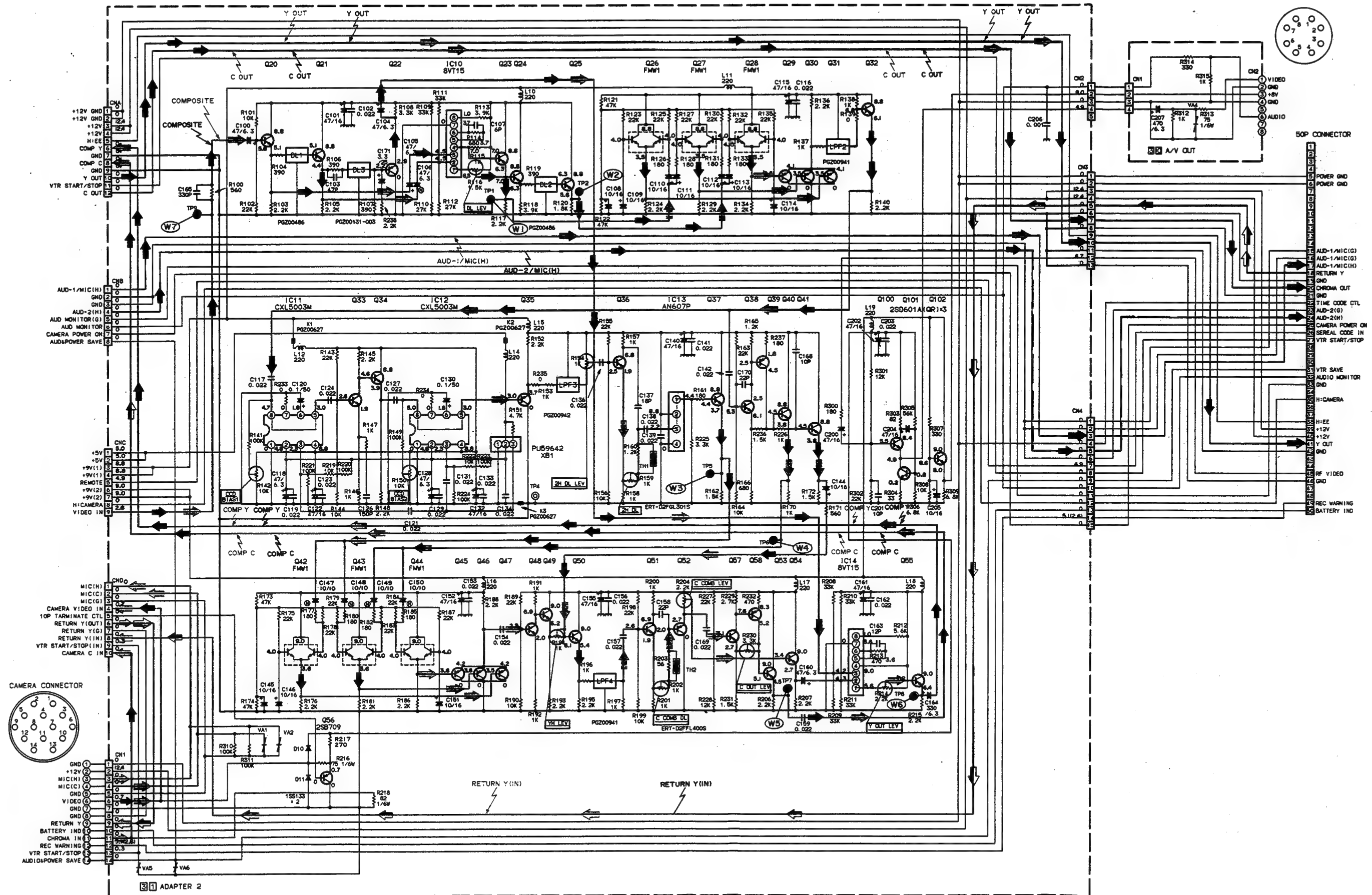
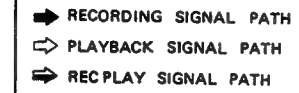
H

- ADAPTER 2 -

VHS:



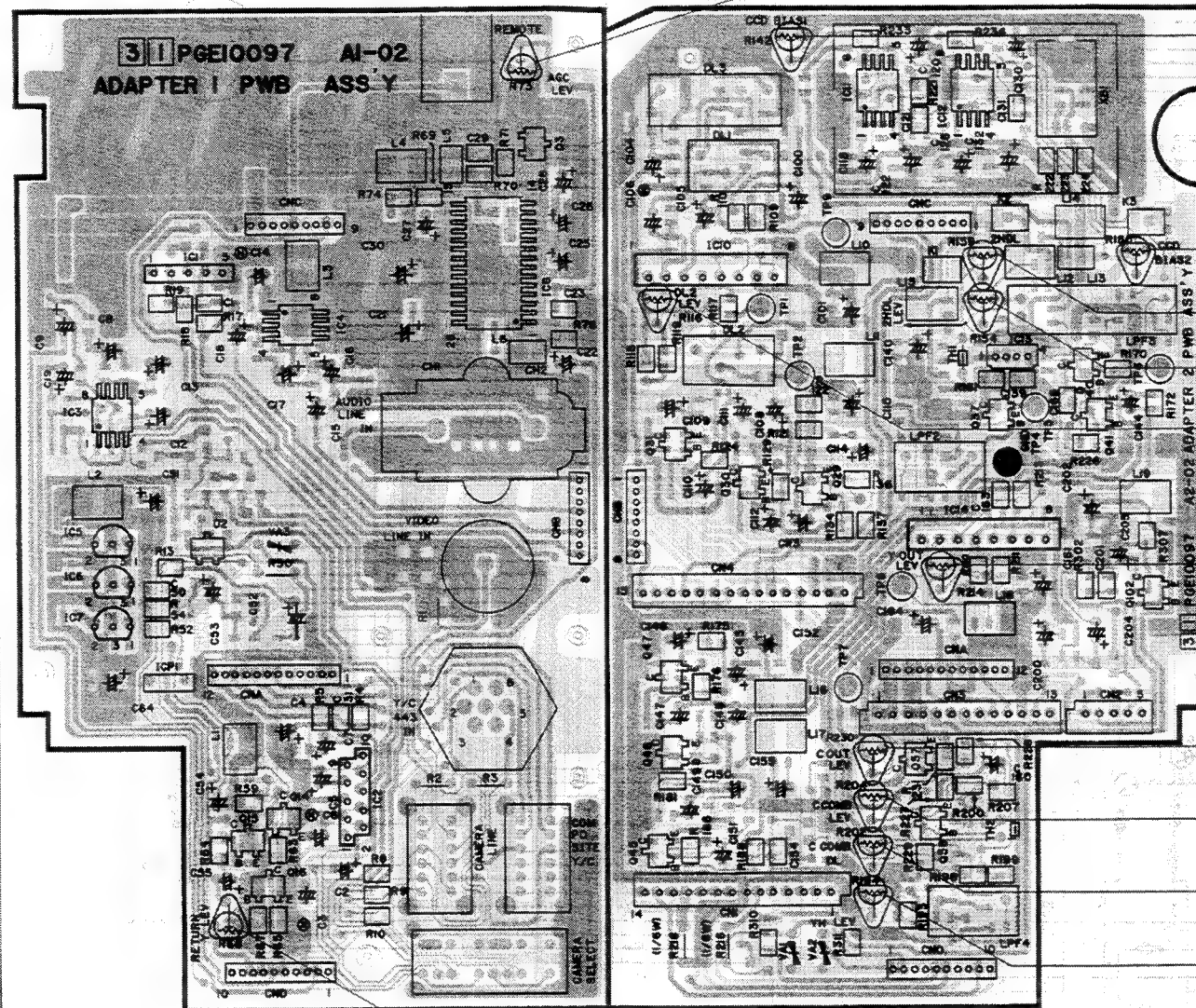
S-VHS:



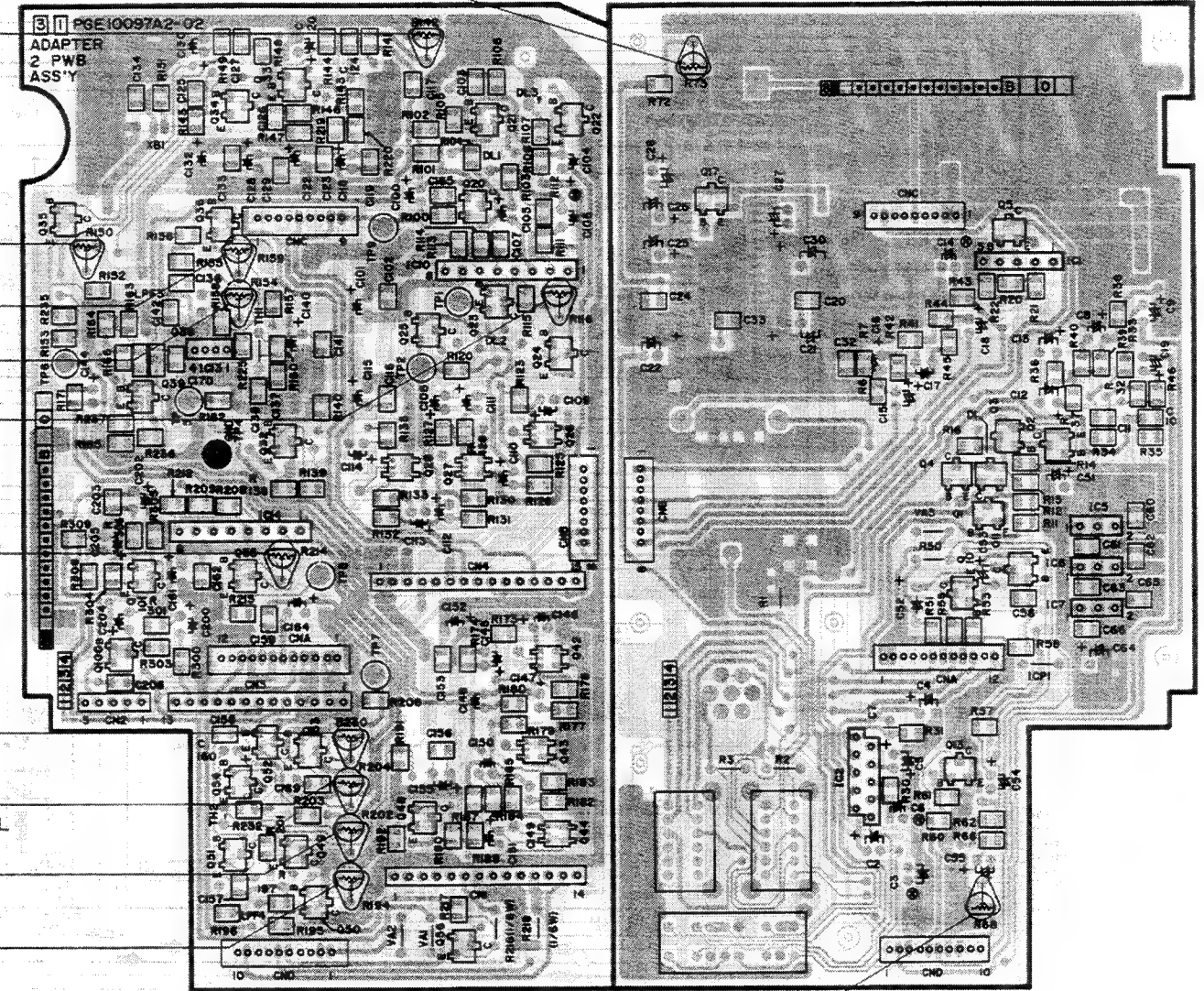
31 ADAPTER 2

3.3 ADAPTER AND A/V OUT CIRCUIT BOARDS

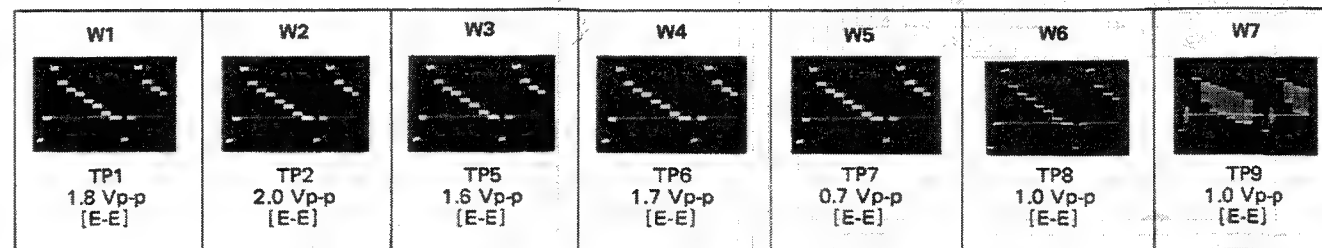
— ADAPTER (Parts side) —



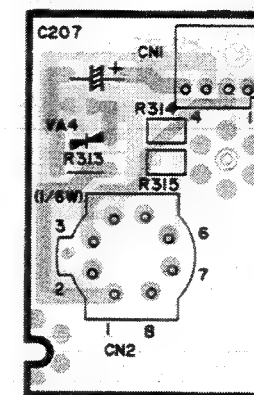
— ADAPTER (Pattern side) —



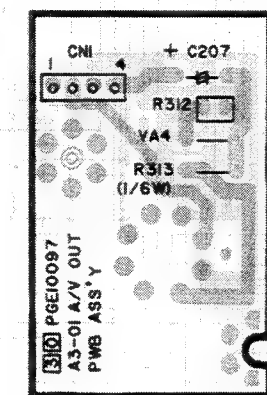
— MAIN WAVEFORM OF ADAPTER CIRCUIT —



— A/V OUT (Parts side) —

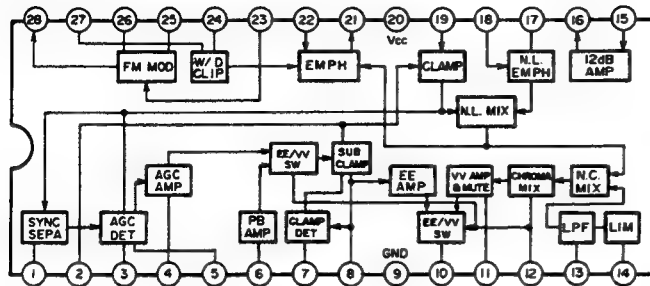


— A/V OUT (Pattern side) —

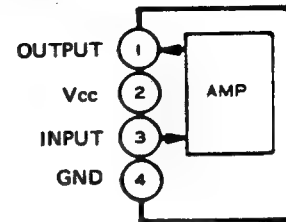


3.4 IC BLOCK DIAGRAMS

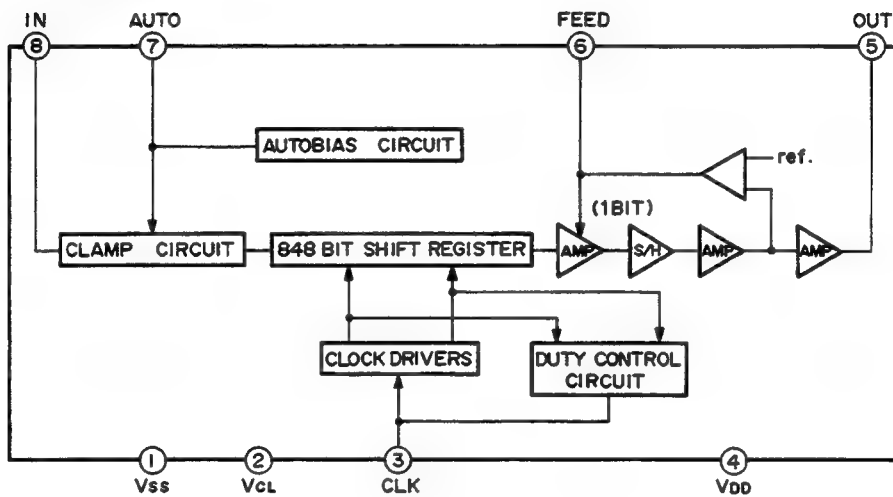
— AN3212S —
VTR Video Signal Processing Circuit



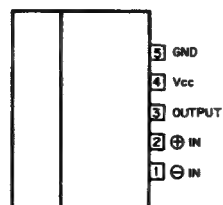
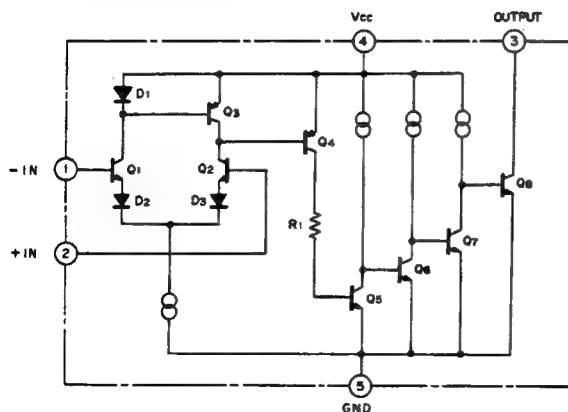
— AN607P —
Wide Band Amplifier Circuit



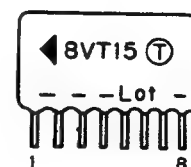
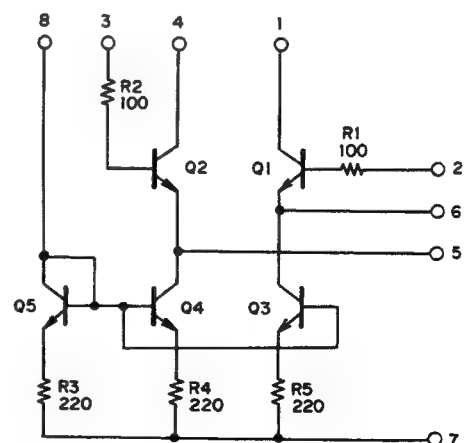
— CXL50003M —



— M51204TL —
Comparator



— 8VT15 —



SECTION 4

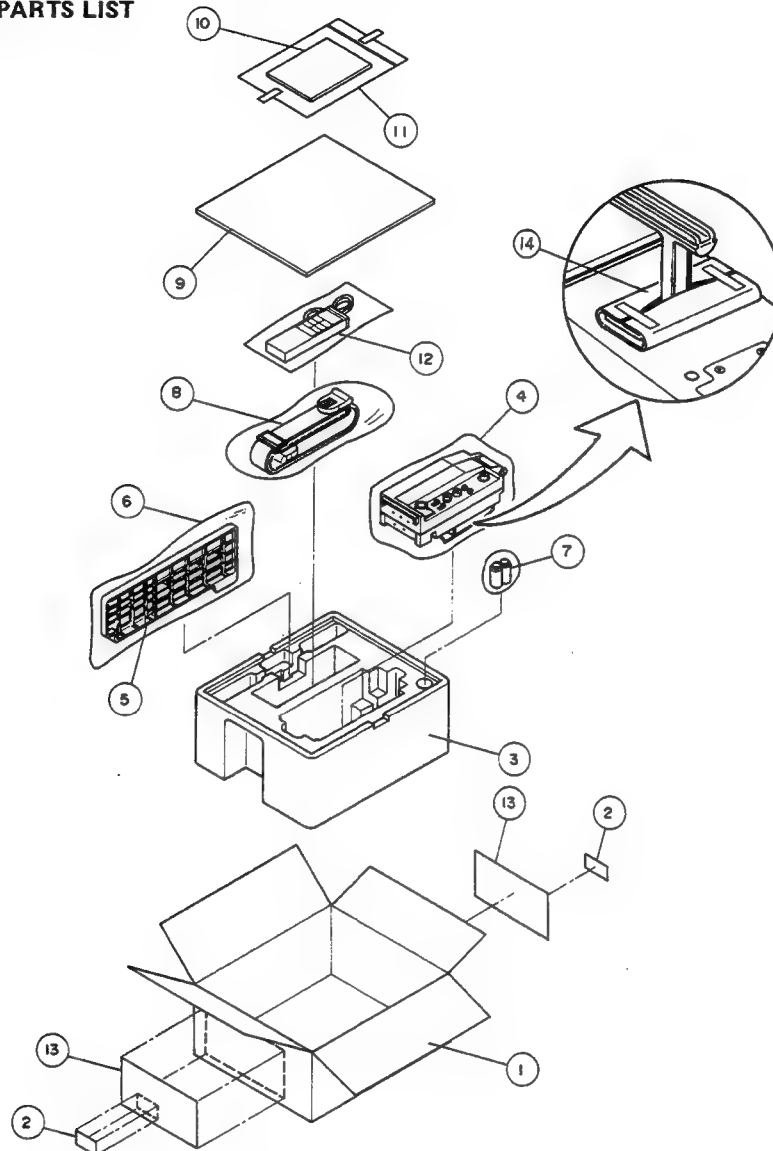
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the Δ symbol are critical for safety. Replace only with specified part numbers.

4.1 EXPLODED VIEWS AND PARTS LIST

4.1.1 Δ 1 Packing assembly

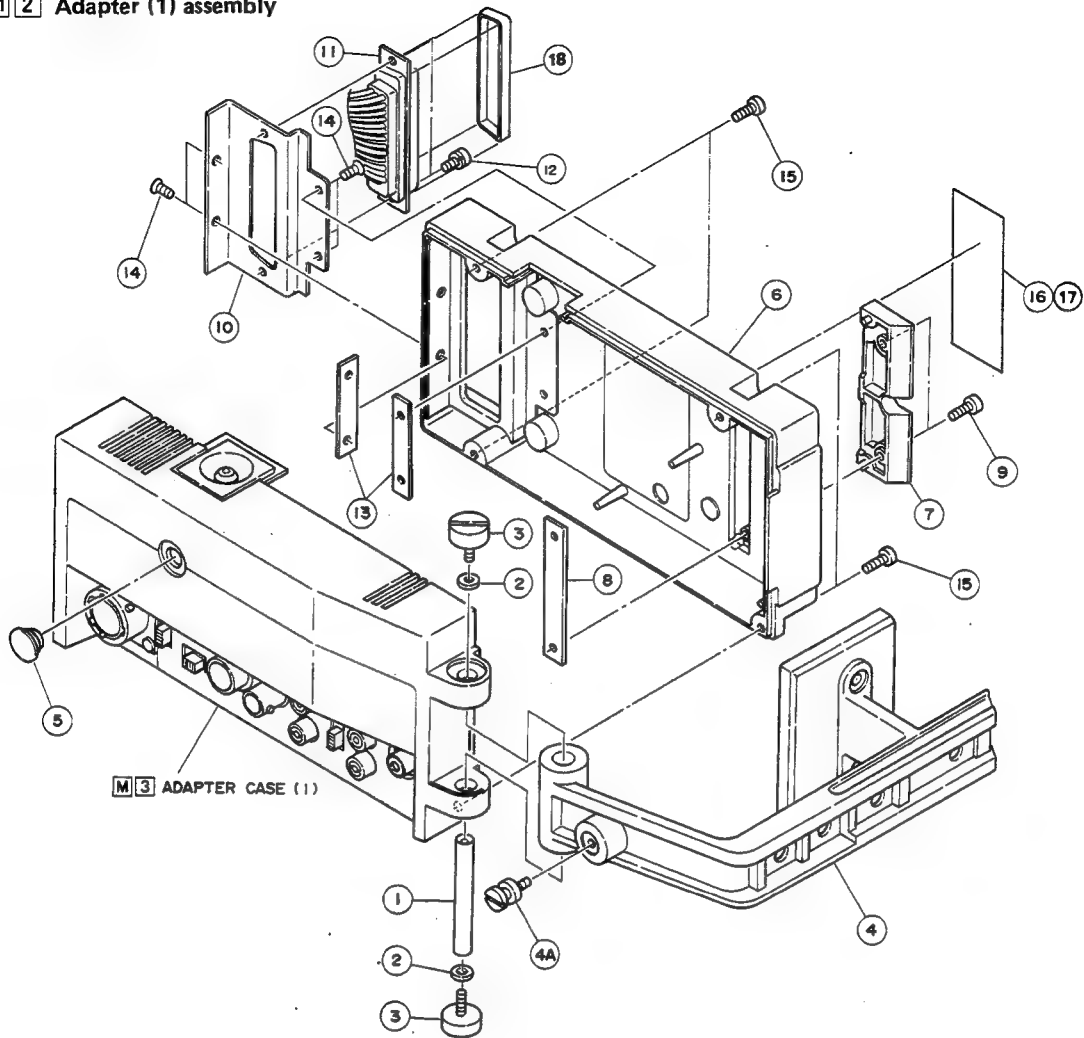


Δ REF NO.	PART NO.	PART NAME, DESCRIPTION
------------------	----------	------------------------

 * 1. PACKING ASSEMBLY Δ 1 *

1	PRD30476	PACKING CASE
2	PUP40619	SERIAL NO. STICKER, X2
3	PRD20226	CUSHION
4	QPGA025-03505	POLY BAG
5	PGD30440A	BASE ASSY
6	QPGA012-03005	POLY BAG
7	UM-3DJ2P	BATTERY, X2
8	PGZ00772	SHOULDER BELT
9	PRD30475	CUSHION PLATE
Δ 10	PGD30002-187	INSTRUCTIONS
11	QPG8024-03404	POLY BAG
12	PGZ00773	REMOTE CONTROL UNIT
13	PRD30394-04	PACKING LABEL, X2
14	PRD42861	SHEET

4.1.2 M 2 Adapter (1) assembly

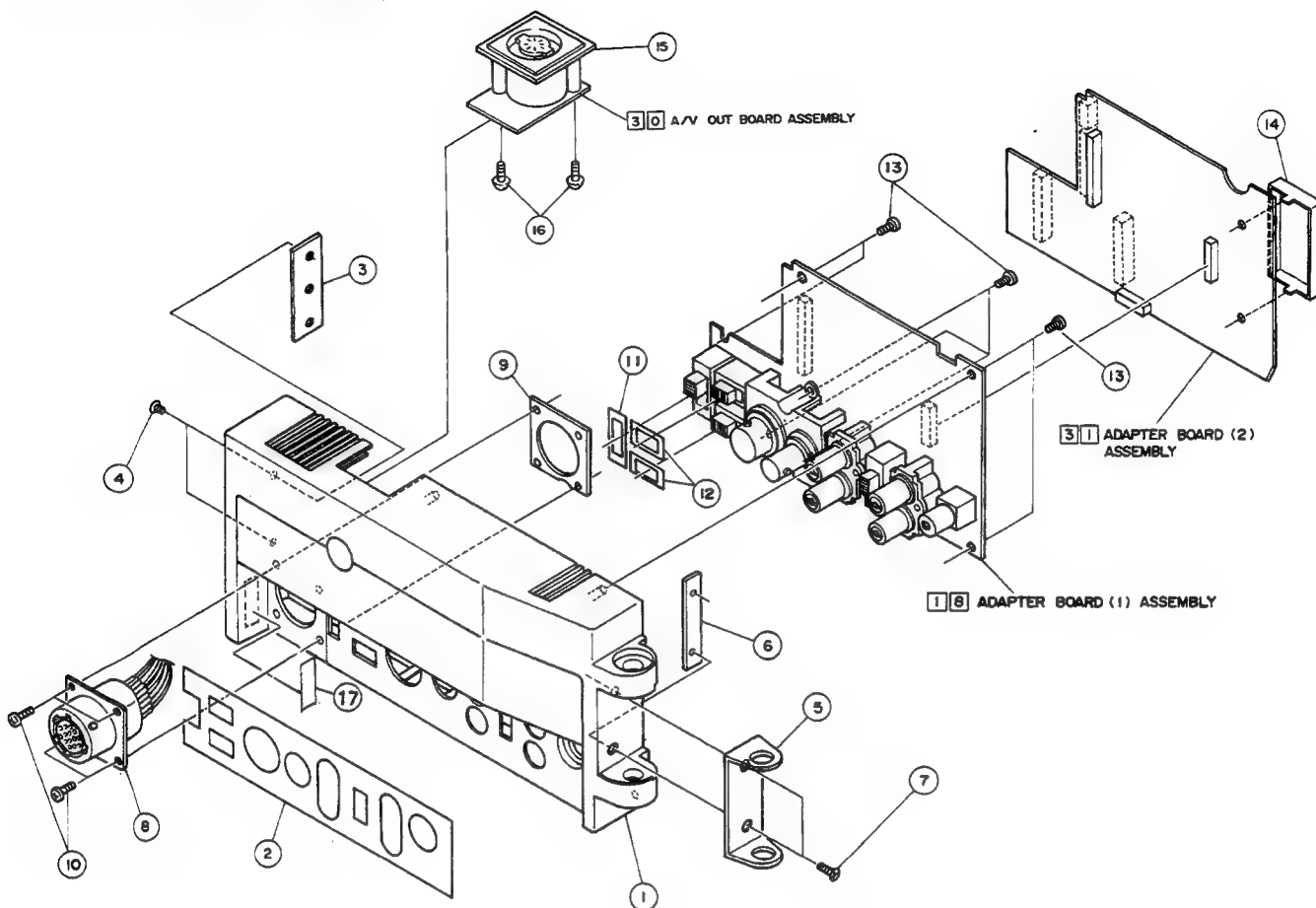


#△ REF NO. PART NO. PART NAME, DESCRIPTION

 * 2. ADAPTER (1) ASSEMBLY M 2 *

1	PGD40756	SHAFT
2	WLS4000N	WASHER, X2
3	PGD40757	COIN SCREW, X2
4	PGD30439A	HANDLE ASSY
4A	PU53202-01-01	HOOK HOLDER
5	PGD40758	CAP
△ 6	PGD20175-01-02	ADAPTER CASE(2)
7	SC30988-003	CAMERA GUIDE
8	PGD40760	PLATE(3)
9	SDSP3012M	SCREW, X2
10	PGD40761	CONNECTOR BRACKET
11	ML-G00450A-02	50P CONNECTOR
12	LPSP2608Z	SCREW, X2
13	PGD40755-01-01	PLATE(2), X2
14	SSSP2606R	SCREW, X4
15	SDSF3014M	SCREW, X4
16	PGD40912	NO PLATE
△ 17	PGD30022-07	SERIAL NO. PLATE
18	PGZ01280-02	DUST CAP

4.1.3 **M** 3 Adapter (2) assembly



#	REF NO.	PART NO.	PART NAME, DESCRIPTION

***** * 3. ADAPTER (2) ASSEMBLY **M** 3 * *****

△ 1	PGD20173-02-06	ADAPTER CASE(1)
2	PGD40752-03	SHEET
3	PGD40753	PLATE(1)
4	SSSP3006R	SCREW, X2
5	PGD40754-01-01	BRACKET
6	PGD40755-01-01	PLATE(2)
7	SSSP2606R	SCREW, X2
8	PU52665	CONNECTOR, CAMERA(14PIN)
9	PGD40853	CONNECTOR PLATE
△ 10	SDSP3008R	SCREW, X4
11	PGD40759-01-01	SHEET
12	PGD40759-02	SHEET, X2
13	SBSF3008Z	TAPPING SCREW, X7
14	PGD40815	SHIELD CASE
15	PGD30441	COVER
16	SBSF2606Z	SCREW, X2
17	PGD40895	LABEL

*Δ REF NO. PART NO. PART NAME, DESCRIPTION

C11	QCSA1HJ-101	CAPACITOR
C12	QER41CM-476	E CAPACITOR
C13	QER41CM-476	E CAPACITOR
C14	QEP41CM-106	NP E CAPACITOR
C15	QER41EM-475	E CAPACITOR
C16	QER41EM-475	E CAPACITOR
C17	QEK41AM-107	E CAPACITOR
C18	QER41EM-475	E CAPACITOR
C19	QER41CM-106	E CAPACITOR
C20	QCF41EZ-104	CAPACITOR
C21	QETA0JM-337	E CAPACITOR
C22	QER41CM-106	E CAPACITOR
C23	QCYA1HK-103	CAPACITOR
C24	QCYA1HK-103	CAPACITOR
C25	QER41CM-476	E CAPACITOR
C26	QEE41CM-475	E CAPACITOR
C27	QER41HM-105	E CAPACITOR
C28	QEE41CM-225	E CAPACITOR
C29	QCTA1CH-560	CAPACITOR
C30	QEM41AK-107	E CAPACITOR
C31	QCSA1HJ-220	CAPACITOR
C32	QCSA1HJ-220	CAPACITOR
C33	QCSA1HJ-270	CAPACITOR
C50	QCYA1HK-223	CAPACITOR
C51	QER41CM-476	E CAPACITOR
C52	PU54990-3	E CAPACITOR
C53	QER41CM-476	E CAPACITOR
C54	QER41CM-106	E CAPACITOR
C55	QER41CM-106	E CAPACITOR
C56	QCSA1HJ-5R0	CAPACITOR
C60	QCYA1HK-223	CAPACITOR
C61	QCYA1HK-223	CAPACITOR
C62	QCYA1HK-223	CAPACITOR
C63	QCYA1HK-223	CAPACITOR
C65	QCYA1HK-223	CAPACITOR
C66	QCYA1HK-223	CAPACITOR
L1	PGZ00638-221K	COIL
L2	PGZ00638-221K	COIL
L3	PGZ00638-221K	COIL
L4	PGZ00638-221K	COIL
L5	PGZ00637-220K	COIL
L6	PGZ00637-100K	COIL
SW1	PGZ00717	SLIDE SWITCH
SW2	PGZ00717	SLIDE SWITCH
SW3	QSS4301-004	SLIDE SWITCH
HD1	PGD30428	CONNECTOR HOLDER
JA1	PGZ00527	2PIN JACK ASSEMBLY
J1	PGZ00409	PIN JACK
SLD1	PGD40915	SPACER
TB1	PGZ00591	BNC CONNECTOR
TB2	PGZ00592	7PIN CONNECTOR
VA3	PU49624-2	VARISTOR
CN1	PGZ00658-12	CONNECTOR, (CN A)
CN2	PGZ00658-8	CONNECTOR, (CN B)
CN3	PGZ00658-9	CONNECTOR, (CN C)
CN4	PGZ00658-10	CONNECTOR, (CN D)
Δ CP1	ICP-F10	CIRCUIT PROTECTOR

-ADAPTER BOARD (2) ASSY-

*Δ REF NO. PART NO. PART NAME, DESCRIPTION

PWBA2	PGE10097A2-02	ADAPTER BOARD (2) ASSEY
IC10	8VT15	IC
IC11	CXL5003M	IC
IC12	CXL5003M	IC
IC13	AN607P	IC
IC14	8VT15	IC
Q20	2SC2778C	TRANSISTOR
Q21	2SC2778C	TRANSISTOR
Q22	2SA1022C	TRANSISTOR
Q23	2SC2778C	TRANSISTOR
Q24	2SC2778C	TRANSISTOR
Q25	2SC2778C	TRANSISTOR
Q26	FMW1	TRANSISTOR
Q27	FMW1	TRANSISTOR
Q28	FMW1	TRANSISTOR
Q29	2SA1022C	TRANSISTOR
Q30	2SA1022C	TRANSISTOR
Q31	2SA1022C	TRANSISTOR
Q32	2SC2778C	TRANSISTOR
Q33	2SC2778C	TRANSISTOR
Q34	2SC2778C	TRANSISTOR
Q35	2SA1022C	TRANSISTOR
Q36	2SC2778C	TRANSISTOR
Q37	2SC2778C	TRANSISTOR
Q38	2SC2778C	TRANSISTOR
Q39	2SA1022C	TRANSISTOR
Q40	2SC2778C	TRANSISTOR
Q41	2SC2778C	TRANSISTOR
Q42	FMW1	TRANSISTOR
Q43	FMW1	TRANSISTOR
Q44	FMW1	TRANSISTOR
Q45	2SA1022C	TRANSISTOR
Q46	2SA1022C	TRANSISTOR
Q47	2SA1022C	TRANSISTOR
Q48	2SC2778C	TRANSISTOR
Q49	2SC2778C	TRANSISTOR
Q50	2SC2778C	TRANSISTOR
Q51	2SC2778C	TRANSISTOR
Q52	2SA1022C	TRANSISTOR
Q53	2SC2778C	TRANSISTOR
Q54	2SC2778C	TRANSISTOR
Q55	2SC2778C	TRANSISTOR
Q56	2SB709	TRANSISTOR
Q57	2SC2778C	TRANSISTOR
Q58	2SA1022C	TRANSISTOR
Q100	2SD601A(QR)	TRANSISTOR
Q101	2SD601A(QR)	TRANSISTOR
Q102	2SD601A(QR)	TRANSISTOR
D10	1SS133	DIODE
D11	1SS133	DIODE
R100	QRSA08J-561YN	RESISTOR
R101	QRSA08J-103YN	RESISTOR
R102	QRSA08J-223YN	RESISTOR
R103	QRSA08J-222YN	RESISTOR
R104	QRSA08J-391YN	RESISTOR
R105	QRSA08J-222YN	RESISTOR
R106	QRSA08J-391YN	RESISTOR
R107	QRSA08J-391YN	RESISTOR
R108	QRSA08J-332YN	RESISTOR
R109	QRSA08J-333YN	RESISTOR
R110	QRSA08J-273YN	RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R111	QRSA08J-333YN	RESISTOR
R112	QRSA08J-273YN	RESISTOR
R113	QRSA08J-392YN	RESISTOR
R114	QRSA08J-681YN	RESISTOR
R115	QRSA08J-102YN	RESISTOR
R116	QVZ3513-152	V RESISTOR , DL2 LEV
R117	QRSA08J-222YN	RESISTOR
R118	QRSA08J-392YN	RESISTOR
R119	QRSA08J-391YN	RESISTOR
R120	QRSA08J-182YN	RESISTOR
R121	QRSA08J-473YN	RESISTOR
R122	QRSA08J-473YN	RESISTOR
R123	QRSA08J-223YN	RESISTOR
R124	QRSA08J-222YN	RESISTOR
R125	QRSA08J-223YN	RESISTOR
R126	QRSA08J-181YN	RESISTOR
R127	QRSA08J-223YN	RESISTOR
R128	QRSA08J-181YN	RESISTOR
R129	QRSA08J-222YN	RESISTOR
R130	QRSA08J-223YN	RESISTOR
R131	QRSA08J-181YN	RESISTOR
R132	QRSA08J-223YN	RESISTOR
R133	QRSA08J-181YN	RESISTOR
R134	QRSA08J-222YN	RESISTOR
R135	QRSA08J-223YN	RESISTOR
R136	QRSA08J-222YN	RESISTOR
R137	QRSA08J-102YN	RESISTOR
R138	QRSA08J-102YN	RESISTOR
R139	QRSA08J-0R0Y	RESISTOR
R140	QRSA08J-222YN	RESISTOR
R141	QRSA08J-104YN	RESISTOR
R142	QVZ3513-103	V RESISTOR , CCD BIAS1
R143	QRSA08J-223YN	RESISTOR
R144	QRSA08J-103YN	RESISTOR
R145	QRSA08J-222YN	RESISTOR
R146	QRSA08J-102YN	RESISTOR
R147	QRSA08J-102YN	RESISTOR
R148	QRSA08J-222YN	RESISTOR
R149	QRSA08J-104YN	RESISTOR
R150	QVZ3513-103	V RESISTOR , CCD BIAS2
R151	QRSA08J-472YN	RESISTOR
R152	QRSA08J-222YN	RESISTOR
R153	QRSA08J-102YN	RESISTOR
R154	QVZ3513-102	V RESISTOR , 2H DL LEV
R155	QRSA08J-223YN	RESISTOR
R156	QRSA08J-103YN	RESISTOR
R157	QRSA08J-102YN	RESISTOR
R158	QRSA08J-102YN	RESISTOR
R159	QVZ3513-102	V RESISTOR , 2H DL
R160	QRSA08J-122YN	RESISTOR
R161	QRSA08J-181YN	RESISTOR
R162	QRSA08J-152YN	RESISTOR
R163	QRSA08J-223YN	RESISTOR
R164	QRSA08J-103YN	RESISTOR
R165	QRSA08J-122YN	RESISTOR
R166	QRSA08J-681YN	RESISTOR
R170	QRSA08J-102YN	RESISTOR
R171	QRSA08J-561YN	RESISTOR
R172	QRSA08J-152YN	RESISTOR
R173	QRSA08J-473YN	RESISTOR
R174	QRSA08J-473YN	RESISTOR
R175	QRSA08J-223YN	RESISTOR
R176	QRSA08J-222YN	RESISTOR
R177	QRSA08J-181YN	RESISTOR
R178	QRSA08J-223YN	RESISTOR
R179	QRSA08J-223YN	RESISTOR
R180	QRSA08J-181YN	RESISTOR

#△ REF NO. PART NO. PART NAME, DESCRIPTION

R181	QRSA08J-222YN	RESISTOR
R182	QRSA08J-181YN	RESISTOR
R183	QRSA08J-223YN	RESISTOR
R184	QRSA08J-223YN	RESISTOR
R185	QRSA08J-181YN	RESISTOR
R186	QRSA08J-222YN	RESISTOR
R187	QRSA08J-223YN	RESISTOR
R188	QRSA08J-222YN	RESISTOR
R189	QRSA08J-223YN	RESISTOR
R190	QRSA08J-103YN	RESISTOR
R191	QRSA08J-102YN	RESISTOR
R192	QRSA08J-102YN	RESISTOR
R193	QRSA08J-222YN	RESISTOR
R194	QVZ3513-102	V RESISTOR , YH LEV
R195	QRSA08J-222YN	RESISTOR
R196	QRSA08J-102YN	RESISTOR
R197	QRSA08J-102YN	RESISTOR
R198	QRSA08J-223YN	RESISTOR
R199	QRSA08J-103YN	RESISTOR
R200	QRSA08J-102YN	RESISTOR
R201	QRSA08J-102YN	RESISTOR
R202	QVZ3513-102	V RESISTOR , C COMB DL
R203	QRSA08J-560YN	RESISTOR
R204	QVZ3513-222	V RESISTOR , C COMB LEV
R206	QRSA08J-222YN	RESISTOR
R207	QRSA08J-222YN	RESISTOR
R208	QRSA08J-333YN	RESISTOR
R209	QRSA08J-333YN	RESISTOR
R210	QRSA08J-333YN	RESISTOR
R211	QRSA08J-333YN	RESISTOR
R212	QRSA08J-562YN	RESISTOR
R213	QRSA08J-471YN	RESISTOR
R214	QVZ3513-222	V RESISTOR , Y OUT LEV
R215	QRSA08J-222YN	RESISTOR
R216	QRD167J-750	RESISTOR
R217	QRSA08J-271YN	RESISTOR
R218	QRD167J-820	RESISTOR
R219	QRSA08F-103YN	RESISTOR
R220	QRSA08F-104YN	RESISTOR
R221	QRSA08F-104YN	RESISTOR
R222	QRSA08F-103YN	RESISTOR
R223	QRSA08F-104YN	RESISTOR
R224	QRSA08F-104YN	RESISTOR
R225	QRSA08J-332YN	RESISTOR
R226	QRSA08J-102YN	RESISTOR
R227	QRSA08J-223YN	RESISTOR
R228	QRSA08J-123YN	RESISTOR
R229	QRSA08J-272YN	RESISTOR
R230	QVZ3513-332	V RESISTOR , C OUT LEV
R231	QRSA08J-152YN	RESISTOR
R232	QRSA08J-471YN	RESISTOR
R233	QRSA08J-0R0Y	RESISTOR
R234	QRSA08J-0R0Y	RESISTOR
R235	QRSA08J-0R0Y	RESISTOR
R236	QRSA08J-152YN	RESISTOR
R237	QRSA08J-181YN	RESISTOR
R238	QRD161J-222	RESISTOR
R300	QRSA08J-181YN	RESISTOR
R301	QRSA08J-123YN	RESISTOR
R302	QRSA08J-223YN	RESISTOR
R303	QRSA08J-820YN	RESISTOR
R304	QRSA08J-330YN	RESISTOR
R305	QRSA08J-563YN	RESISTOR
R306	QRSA08J-682YN	RESISTOR
R307	QRSA08J-331YN	RESISTOR
R308	QRSA08J-103YN	RESISTOR
R309	QRSA08J-682YN	RESISTOR

#Δ REF NO. PART NO. PART NAME, DESCRIPTION

R310	QRSA08J-104YN	RESISTOR
R311	QRSA08J-104YN	RESISTOR
C100	QER40JM-476	E CAPACITOR
C101	QER41CM-476	E CAPACITOR
C102	QCYA1HK-223	CAPACITOR
C103	QCTA1CH-470	CAPACITOR
C104	QER40JM-476	E CAPACITOR
C105	QER40JM-476	E CAPACITOR
C106	QEP40JM-476	NP E CAPACITOR
C107	QCTA1CH-6R0	CAPACITOR
C108	QER41CM-106	E CAPACITOR
C109	QER41CM-106	E CAPACITOR
C110	QER41CM-106	E CAPACITOR
C111	QER41CM-106	E CAPACITOR
C112	QER41CM-106	E CAPACITOR
C113	QER41CM-106	E CAPACITOR
C114	QER41CM-106	E CAPACITOR
C115	QER41CM-476	E CAPACITOR
C116	QCYA1HK-223	CAPACITOR
C117	QCYA1HK-223	CAPACITOR
C118	QER40JM-476	E CAPACITOR
C119	QCYA1HK-223	CAPACITOR
C120	QER41HM-104	E CAPACITOR
C121	QCYA1HK-223	CAPACITOR
C122	QER41CM-476	E CAPACITOR
C123	QCYA1HK-223	CAPACITOR
C124	QCYA1HK-223	CAPACITOR
C126	QCTA1CH-151	CAPACITOR
C127	QCYA1HK-223	CAPACITOR
C128	QER40JM-476	E CAPACITOR
C129	QCYA1HK-223	CAPACITOR
C130	QER41HM-104	E CAPACITOR
C131	QCYA1HK-223	CAPACITOR
C132	QER41CM-476	E CAPACITOR
C133	QCYA1HK-223	CAPACITOR
C134	QCYA1HK-223	CAPACITOR
C136	QCYA1HK-223	CAPACITOR
C137	QCTA1CH-100	CAPACITOR
C138	QCYA1HK-223	CAPACITOR
C139	QCYA1HK-223	CAPACITOR
C140	QER41CM-476	E CAPACITOR
C141	QCYA1HK-223	CAPACITOR
C142	QCYA1HK-223	CAPACITOR
C144	QER41CM-106	E CAPACITOR
C145	QER41CM-106	E CAPACITOR
C146	QER41CM-106	E CAPACITOR
C147	QEP41AM-106	NP CAPACITOR
C148	QEP41AM-106	NP CAPACITOR
C149	QEP41AM-106	NP CAPACITOR
C150	QEP41AM-106	NP CAPACITOR
C151	QER41CM-106	E CAPACITOR
C152	QER41CM-476	E CAPACITOR
C153	QCYA1HK-223	CAPACITOR
C154	QCYA1HK-223	CAPACITOR
C155	QER41CM-476	E CAPACITOR
C156	QCYA1HK-223	CAPACITOR
C157	QCYA1HK-223	CAPACITOR
C158	QCTA1CH-220	CAPACITOR
C159	QCYA1HK-223	CAPACITOR
C160	QER40JM-476	E CAPACITOR
C161	QER41CM-476	E CAPACITOR
C162	QCYA1HK-223	CAPACITOR
C163	QCTA1CH-120	CAPACITOR
C164	QETA0JM-337	E CAPACITOR
C165	QCTA1CH-331	CAPACITOR

#Δ REF NO. PART NO. PART NAME, DESCRIPTION

C168	QCTA1CH-100	CAPACITOR
C169	QCYA1HK-223	CAPACITOR
C170	QCTA1CH-220	CAPACITOR
C171	QER41EM-335	E CAPACITOR
C200	QER41CM-476	E CAPACITOR
C201	QCSA1HJ-100	CAPACITOR
C202	QER41CM-476	E CAPACITOR
C203	QCYA1HK-223	CAPACITOR
C204	QER41CM-476	E CAPACITOR
C205	QER41CM-106	E CAPACITOR
C206	QCYA1HK-102	CAPACITOR
L10	PGZ00638-221K	COIL
L11	PGZ00638-221K	COIL
L12	PGZ00638-221K	COIL
L14	PGZ00638-221K	COIL
L15	PGZ00638-221K	COIL
L16	PGZ00638-221K	COIL
L17	PGZ00638-221K	COIL
L18	PGZ00638-221K	COIL
L19	PGZ00638-221K	COIL
LPF2	PGZ00941	LOW PASS FILTER
LPF3	PGZ00942	LOW PASS FILTER
LPF4	PGZ00941	LOW PASS FILTER
DL1	PGZ00486	DELAY LINE
DL2	PGZ00486	DELAY LINE
DL3	PGZ00131-003	DELAY LINE
Δ XB1	PU59642	CRYSTAL RESONATOR
K1	PGZ00627	CHIP FERRITE BEADS
K2	PGZ00627	CHIP FERRITE BEADS
K3	PGZ00627	CHIP FERRITE BEADS
TH1	ERT-D2FGL301S	THERMISTOR
TH2	ERT-D2FFL400S	THERMISTOR
Δ VA1	PU49624-2	VARISTOR
Δ VA2	PU49624-2	VARISTOR
VA5	PU49624-2	VARISTOR
VA6	PU49624-2	VARISTOR
TP1	PGZ00587-00	TEST POINT, XB
CN1	PU58844-14	CAP HOUSING
CN2	PU58844-5	CAP HOUSING
CN3	PU58844-13	CAP HOUSING
CN4	PU58844-15R	CAP HOUSING
CN5	PGZ00659-12	CONNECTOR, (CN A)
CN6	PGZ00659-8	CONNECTOR, (CN B)
CN7	PGZ00659-9	CONNECTOR, (CN C)
CN8	PGZ00659-10	CONNECTOR, (CN D)